ATMIC NETWORKS
YOUR GUIDE TO GLOBAL CERTIFIATION

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Question: 1

[Identity and Access Management (IAM)]

A security analyst is reviewing the following authentication logs:

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12/15	B= n^BA-M	TH 04	Utsrl	Kj
12 15	6;JI :23AM	TWO0	r>—.z	Nc
13/15	8; .2:2?;...	VWQ1	L=--l	1:
12 1:	£:J1:23AM	vx	L ■ * ” 1	Ka
12/15	9:31:23AM	*vy.22*	User12	**ie e**
12/15	9:01:22AM	SUM	u-erl	¥“
12/15	9:jl:22AM	VMJ 1	□.tepS	Wo
■2 15	r i"!	vy)	□ 'p r2	No
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Which of thefollowing should the analyst do first?

A. Disable User2's account
B. Disable User12's account
C. Disable User8's account
D. Disable User1's account

Answer: D

Explanation:

Based on the provided authentication logs, we observe that User1's accountexperienced multiple failed login attempts within a very short time span (at 8:01:23 AM on 12/15). This pattern indicates a potential brute-force attack or an attempt to gain unauthorized access. Here’s a breakdown of why

disabling User1's account is the appropriate first step:

Failed Login Attempts: The logs show that User1 had four consecutive failed login attempts:

VM01 at 8:01:23 AM
VM08 at 8:01:23 AM
VM01 at 8:01:23 AM
VM08 at 8:01:23 AM

Security Protocols and Best Practices: According to CompTIA Security+ guidelines, multiple failed login attempts within a short timeframe should trigger an immediate response to prevent further potential unauthorized access attempts. This typically involves temporarily disabling the account to stop ongoing

brute-force attacks.

Account Lockout Policy: Implementing an account lockout policy is a standard practice to thwart brute-force attacks. Disabling User1's account will align with these best practices and prevent further failed attempts, which might lead to successful unauthorized access if not addressed.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

CompTIA Security+ Certification Exam Objectives

NIST Special Publication 800-63B: Digital Identity Guidelines

By addressing User1's account first, we effectively mitigate the immediate threat of a brute-force attack, ensuring that further investigation can be conducted without the risk of unauthorized access continuing during the investigation period.

Question: 2

[Emerging Technologies and Threats]

Which of the following AI concerns is most adequately addressed by input sanitation?

A. Model inversion
B. Prompt Injection
C. Data poisoning
D. Non-explainable model

Answer: B

Explanation:

Input sanitation is a critical process in cybersecurity that involvesvalidating and cleaning data provided by users to prevent malicious inputs from causing harm. In the context of AI concerns: A . Model inversion involves an attacker inferring sensitive data from model outputs, typically requiring sophisticated methods beyond just manipulating input data.

B . Prompt Injection is a form of attack where an adversary provides malicious input to manipulate the behavior of AI models, particularly those dealing with natural language processing (NLP). Input sanitation directly addresses this by ensuring that inputs are cleaned and validated to remove potentially harmful commands or instructions that could alter the AI's behavior.

C . Data poisoning involves injecting malicious data into the training set to compromise the model. While input sanitation can help by filtering out bad data, data poisoning is typically addressed through robust data validation and monitoring during the model training phase, rather than realtime input sanitation.

D . Non-explainable model refers to the lack of transparency in how AI models make decisions. This concern is not addressed by input sanitation, as it relates more to model design and interpretability techniques.

Input sanitation is most relevant and effective for preventing Prompt Injection attacks, where the integrity of user inputs directly impacts the performance and security of AI models.

Reference:

CompTIA Security+ Study Guide

"Security of Machine Learning" by Battista Biggio, Blaine Nelson, and Pavel Laskov

OWASP (Open Web Application Security Project) guidelines on input validation and injection attacks Top of Form Bottom of Form

Question: 3

[Governance, Risk, and Compliance (GRC)]

A systems administrator wants to introduce a newly released feature for an internal application. The administrate docs not want to test the feature in the production environment. Which of the following locations is the best place to test the new feature?

A. Staging environment
B. Testing environment
C. CI/CO pipeline
D. Development environment

Answer: A

Explanation:

The best location to test a newly released feature for an internal application, without affecting the production environment, is the staging environment. Here's a detailed explanation: Staging Environment: This environment closely mirrors the production environment in terms of hardware, software, configurations, and settings. It serves as a final testing ground before deploying changes to production. Testing in the staging environment ensures that the new feature will behave as expected in the actual production setup. Isolation fromProduction: The staging environment is isolated from production, which means any issues arising from the new feature will not impact the live users or the integrity of the production data. This aligns with best practices in change management and risk mitigation.

Realistic Testing: Since the staging environment replicates the production environment, it provides realistic testing conditions. This helps in identifying potential issues that might not be apparent in a development or testing environment, which often have different configurations and workloads. Reference:

CompTIA Security+ SY0-601 Official Study Guide by Quentin Docter, Jon Buhagiar

NIST Special Publication 800-53: Security and Privacy Controls for Information Systems and Organizations

Question: 4

[Security Operations]

A cybersecurity architect is reviewing the detection and monitoring capabilities for a global company that recently made multiple acquisitions. The architect discovers that the acquired companies use different vendors for detection and monitoring The architect's goal is to:

- Create a collection of use cases to help detect known threats
- Include those use cases in a centralized library for use across all of the companies

Which of the following is the best way to achieve this goal?

A. Sigma rules
B. Ariel Query Language
C. UBA rules and use cases
D. TAXII/STIX library

Answer: A

Explanation:

To create a collection of use cases for detecting known threats and include them in a centralized library for use across multiple companies withdifferent vendors, Sigma rules are the best option. Here's why:
Vendor-Agnostic Format: Sigma rules are a generic and open standard for writing SIEM (Security Information and Event Management) rules. They can be translated to specific query languages of different SIEM systems, making them highly versatile and applicable across various platforms. Centralized Rule Management: By using Sigma rules, the cybersecurity architect can create a centralized library of detection rules that can be easily shared and implemented across different detection and monitoring systems used by the acquired companies. This ensures consistency in threat detection capabilities.
Ease of Use and Flexibility: Sigma provides a structured and straightforward format for defining detection logic. It allows for the easy creation, modification, and sharing of rules, facilitating collaboration and standardization across the organization.

Question: 5

[Emerging Technologies and Threats]
After an incident occurred, a team reported during the lessons-learned review that the team.
* Lost important Information for further analysis.
* Did not utilize the chain of communication
* Did not follow the right steps for a proper response
Which of the following solutions is the best way to address these findinds?

A. Requestingbudget for better forensic tools to Improve technical capabilities for Incident response operations
B. Building playbooks for different scenarios and performing regular table-top exercises
C. Requiring professional incident response certifications tor each new team member
D. Publishing the incident response policy and enforcing it as part of the security awareness program

Answer: B

Explanation:

Building playbooks for different scenarios and performing regular table-top exercises directly addresses the issues identified in the lessons-learned review. Here's why:
Lost important information for further analysis: Playbooks outline step-by-step procedures for incident response, ensuring that team members know exactly what to document and how to preserve evidence.
Did not utilize the chain of communication: Playbooks include communication protocols, specifying who to notify and when. Regular table-top exercises reinforce these communication channels, ensuring they are followed during actual incidents.
Did not follow the right steps for a proper response: Playbooks provide a clear sequence of actions to be taken during various types of incidents, helping the team to respond in a structured and effective manner. Regular exercises allow the team to practice these steps, identifying and correcting any deviations from the plan.
Investing in better forensic tools (Option A) or requiring certifications (Option C) are also valuable, but they do

not directly address the procedural and communication gaps identified. Publishing and enforcing the incident response policy (Option D) is important but not as practical and hands-on as playbooks and exercises in ensuring the team is prepared.

Reference:

CompTIA Security+ Study Guide

NIST SP 800-61 Rev. 2, "Computer Security Incident Handling Guide"

SANS Institute, "Incident Handler's Handbook"

Question: 6

[Security Architecture]

After remote desktop capabilities were deployed in the environment, various vulnerabilities were noticed.

- Exfiltration of intellectual property
- Unencrypted files
- Weak user passwords

Which of the following is the best way to mitigate these vulnerabilities? (Select two).

A. Implementing data loss prevention
B. Deploying file integrity monitoring
C. Restricting access to critical file services only
D. Deployingdirectory-based group policies
E. Enabling modem authentication that supports MFA
F. Implementing a version control system
G. Implementing a CMDB platform

Answer: A,E

Explanation:

To mitigate the identified vulnerabilities, the followingsolutions are most appropriate:

A . Implementing data loss prevention (DLP): DLP solutions help prevent the unauthorized transfer of data outside the organization. This directly addresses the exfiltration of intellectual property by monitoring, detecting, and blocking sensitive data transfers.

E . Enabling modern authentication that supports Multi-Factor Authentication (MFA): This significantly enhances security by requiring additional verification methods beyond just passwords. It addresses the issue of weak user passwords by making it much harder for unauthorized users to gain access, even if they obtain the password.

Other options, while useful in specific contexts, do not address all the vulnerabilities mentioned:

B . Deploying file integrity monitoring helps detect changes to files but does not prevent data exfiltration or address weak passwords.

C . Restricting access to critical file services improves security but is not comprehensive enough to mitigate all identified vulnerabilities.

D . Deploying directory-based group policies can enforce security policies but might not directly prevent data exfiltration or ensure strong authentication.

F . Implementing a version control system helps manage changes to files but is not a security measure for preventing the identified vulnerabilities.

G . Implementing a CMDB platform (Configuration Management Database) helps manage IT assets but does

not address the specific security issues mentioned.

Reference:

CompTIA Security+ Study Guide

NIST SP 800-53 Rev. 5, "Security and Privacy Controls for Information Systems and Organizations"

CIS Controls, "Control 13: Data Protection" and "Control 16: Account Monitoring and Control"

Question: 7

[Security Architecture]

A systems engineer is configuring a system baseline for servers that will provide email services. As part of the architecture design, the engineer needs to improve performance of the systems by using an access vector cache, facilitating mandatory access control and protecting against:

- Unauthorized reading and modification of data and programs
- Bypassing application security mechanisms
- Privilege escalation
- interference with other processes

Which of the following is the most appropriate for the engineer to deploy?

A. SELinux
B. Privileged access management
C. Self-encrypting disks
D. NIPS

Answer: A

Explanation:

The most appropriate solution for the systems engineer to deploy is SELinux (Security-Enhanced Linux).

Here's why:

Mandatory Access Control (MAC): SELinux enforces MAC policies, ensuring that only authorized users and processes can access specific resources. This helps in preventing unauthorized reading and modification of data and programs.

Access Vector Cache: SELinux utilizes an access vector cache (AVC) to improve performance. The AVC caches access decisions, reducing the need for repetitive policy lookups and thus improving system efficiency.

Security Mechanisms: SELinux provides a robust framework to enforce security policies and prevent bypassing of application security mechanisms. It controls access based on defined policies, ensuring that security measures are consistently applied.

Privilege Escalation and Process Interference: SELinux limits the ability of processes to escalate privileges and interfere with each other by enforcing strict access controls. This containment helps in isolating processes and minimizing the risk of privilege escalation attacks.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NSA's Guide to the Secure Configuration of Red Hat Enterprise Linux 5 (SELinux)

NIST Special Publication 800-53: Security and Privacy Controls for Information Systems and Organizations

Question: 8

[Emerging Technologies and Threats]

A company lined an email service provider called my-email.com to deliver company emails. The company stalled having several issues during the migration. A security engineer is troubleshooting and observes the following configuration snippet:

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email S LT IL	id IN		3rvC1.: zapany.crm isiLiGE Ji.io
wetL<	IN	JR.	.02.1^. LL:
3	IN	TXT	"r ';are L nr . cr :.: ncwf any. r:~ -al] "

Which of the following should the security engineer modify to fix the issue? (Select two).

A. The email CNAME record must be changed to a type A record pointing to 192.168.111
B. The TXT record must be Changed to "v=dmarc ip4:192.168.1.10 include:my-email.com -all"
C. The srvo1 A record must be changed to a type CNAME record pointing to the email server D. The email CNAMErecord must be changed to a type A record pointing to 192.168.1.10 E. The TXT record must be changed to "v=dkim ip4:l92.168.1.11 include my-email.com -ell" F. The TXT record must be Changed to "v=dkim ip4:192.168.1.10 include:email-all"
G. The srv01 A record must be changed to a type CNAME record pointing to the web01 server

Answer: B,D

Explanation:

The security engineer should modify the following to fix the email migration issues:

Email CNAME Record: The email CNAME record must be changed to a type A record pointing to 192.168.1.10. This is because CNAME records should not be used where an IP address (A record) is required. Changing it to an A record ensures direct pointing to the correct IP.

TXT Record for DMARC: The TXT record must be changed to "v=dmarc ip4:192.168.1.10 include com -all". This ensures proper configuration of DMARC (Domain-based Message Authentication, Reporting & Conformance) to include the correct IP address and the email service provider domain. DMARC: Ensuring the DMARC record is correctly set up helps in preventing email spoofing and phishing, aligning with email security best practices.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

RFC 7489: Domain-based Message Authentication, Reporting & Conformance (DMARC)

NIST Special Publication 800-45: Guidelines on Electronic Mail Security

Question: 9

[Security Architecture]

Within a SCADA a business needs access to the historian server in order together metric about the functionality of the environment. Which of the following actions should be taken to address this requirement?

A. Isolating the historian server for connections only from The SCADA environment
B. Publishing the C$ share from SCADA to the enterprise
C. Deploying a screened subnet between 11 and SCADA
D. Adding the business workstations to the SCADA domain

Answer: A

Explanation:

The best action to address the requirement of accessing the historian server within a SCADA system is to isolate the historian server for connections only from the SCADAenvironment. Here's why: Security and Isolation: Isolating the historian server ensures that only authorized devices within the SCADA environment can connect to it. This minimizes the attack surface and protects sensitive data from unauthorized access.

Access Control: By restricting access to the historian server to only SCADA devices, the organization can better control and monitor interactions, ensuring that only legitimate queries and data retrievals occur.

Best Practices for Critical Infrastructure: Following the principle of least privilege, isolating critical components like the historian server is a standard practice in securing SCADA systems, reducing the risk of cyberattacks.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl
NIST Special Publication 800-82: Guide to Industrial Control Systems (ICS) Security
ISA/IEC 62443 Standards: Security for Industrial Automation and Control Systems

Question: 10

[Security Architecture]
All organization is concerned about insider threats from employees who have individual access to encrypted material. Which of the following techniques best addresses this issue?

A. SSO with MFA
B. Sating and hashing
C. Account federation with hardware tokens
D. SAE
E. Key splitting

Answer: E

Explanation:

The technique that best addresses the issue of insider threats from employees who have individual access to encrypted material is key splitting. Here's why:

Key Splitting: Key splitting involves dividing a cryptographic key into multiple parts anddistributing these parts among different individuals or systems. This ensures that no single individual has complete access to the key, thereby mitigating the risk of insider threats.

Increased Security: By requiring multiple parties to combine their key parts to access encrypted material, key splitting provides an additional layer of security. This approach is particularly useful in environments where sensitive data needs to be protected from unauthorized access by insiders. Compliance and Best Practices: Key splitting aligns with best practices and regulatory requirements for handling sensitive information, ensuring that access is tightly controlled and monitored. Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-57: Recommendation for Key Management

ISO/IEC 27002:2013: Information Technology - Security Techniques - Code of Practice for Information Security Controls

By employing key splitting, organizations can effectively reduce the risk ofinsider threats and enhance the overall security of encrypted material.

Question: 11

[Security Architecture]

A vulnerability can on a web server identified the following:

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TLi_F:£A_r;'TT^_ALi_:12a_7BZ'_±KA	12B
TLE_5Si_H:T!;_'iDE=_ED€_7E7_.'lC₁	**LSi**
TLL **_i[J K^A. .71711** :i'i: **£L-i** ?L: £:m	L£S CH <13^4 tits)

Which of the following actions would most likely eliminate on path decryption attacks? (Select two).

A. Disallowing cipher suites that use ephemeral modes of operation for key agreement
B. Removing support for CBC-based key exchange and signing algorithms
C. Adding TLS_ECDHE_ECDSA_WITH_AE3_256_GCMS_HA256
D. Implementing HIPS rules to identify and block BEAST attack attempts
E. Restricting cipher suites to only allow TLS_RSA_WITH_AES_128_CBC_SHA
F. Increasing the key length to 256 for TLS_RSA_WITH_AES_128_CBC_SHA

Answer: B,C

Explanation:

On-path decryption attacks, such as BEAST (Browser Exploit Against SSL/TLS) and other related vulnerabilities, often exploit weaknesses in the implementation of CBC (Cipher Block Chaining) mode. To mitigate these attacks, the following actions are recommended:

B . Removing support for CBC-based key exchange and signing algorithms: CBC mode is vulnerable to certain attacks like BEAST. By removing support for CBC-based ciphers, you can eliminate one of the primary vectors for these attacks. Instead, use modern cipher modes like GCM (Galois/Counter Mode) which offer better security properties.

C . Adding TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA256: This cipher suite uses Elliptic Curve Diffie-Hellman Ephemeral (ECDHE) for key exchange, which provides perfect forward secrecy. It also uses AES in GCM mode, which is not susceptible to the same attacks as CBC. SHA-256 is a strong hash function that ensures data integrity.

Reference:

CompTIA Security+ Study Guide

NIST SP 800-52 Rev. 2, "Guidelines for the Selection, Configuration, and Use of Transport Layer Security (TLS) Implementations"

OWASP (Open Web Application Security Project) guidelines on cryptography and secure communication

Question: 12

[Security Operations]

The identity and access management team is sending logs to the SIEM for continuous monitoring. The deployed log collector isforwarding logs to

the SIEM. However, only false positive alerts are being generated. Which of the following is the most likely reason for the inaccurate alerts?

A. The compute resources are insufficient to support the SIEM
B. The SIEM indexes are 100 large
C. The data is not being properly parsed
D. The retention policy is not property configured

Answer: C

Explanation:

Proper parsing of data is crucial for the SIEM to accurately interpret and analyze the logs being forwarded by the log collector. If the data is not parsed correctly, the SIEM may misinterpret the logs, leading to false positives and inaccurate alerts. Ensuring that the log data is correctly parsed allows the SIEM to correlate and analyze the logs effectively, which is essential for accurate alerting and monitoring.

Question: 13

[Security Operations]
An incident response team is analyzing malware and observes the following:

- Does not execute in a sandbox
- No network loCs
- No publicly known hash match
- No process injection method detected

Which of thefollowing should the team do next to proceed with further analysis?

A. Use an online vims analysis tool to analyze the sample
B. Check for an anti-virtualization code in the sample
C. Utilize a new deployed machine to run the sample.
D. Search oilier internal sources for a new sample.

Answer: B

Explanation:

Malware that does not execute in a sandbox environment often contains anti-analysis techniques, such as anti-virtualization code. This code detects when the malware is running in a virtualized environment and alters its behavior to avoid detection. Checking for anti-virtualization code is a logical next step because:

It helps determine if the malware is designed to evade analysis tools.
Identifying such code can provide insights into themalware's behavior and intent.
This step can also inform further analysis methods, such as running the malware on physical hardware.
Reference:
CompTIA Security+ Study Guide
SANS Institute, "Malware Analysis Techniques"
"Practical Malware Analysis" by Michael Sikorski and Andrew Honig

Question: 14

[Governance, Risk, and Compliance (GRC)]
Which of the following best explains the importance of determining organization risk appetite when operating with a constrained budget?

A. Risk appetite directly impacts acceptance of high-impact low-likelihood events.
B. Organizational risk appetite varies from organization to organization
C. Budgetary pressure drives risk mitigation planning in all companies
D. Risk appetite directly influences which breaches are disclosed publicly

Answer: A

Explanation:

Risk appetite is the amount of risk an organization is willing to accept to achieve its objectives. When operating with a constrained budget, understanding the organization's risk appetite is crucial because:
It helps prioritize security investments based on the level of risk the organization is willing to tolerate.
High-impact, low-likelihood events may be deemed acceptable if they fall within the organization's risk appetite, allowing for budget allocation to other critical areas.
Properly understanding and defining risk appetite ensures that limited resources are used effectively to manage risks that align with the organization's strategic goals.
Reference:
CompTIA Security+ Study Guide
NIST Risk Management Framework (RMF) guidelines
ISO 31000, "Risk Management – Guidelines"

Question: 15

[Security Engineering and Cryptography]
Developers have been creating and managing cryptographic material on their personal laptops fix use in production environment. A security engineer needs to initiate a more secure process. Which of thefollowing is the best strategy for the engineer to use?

A. Disabling the BIOS and moving to UEFI
B. Managing secrets on the vTPM hardware
C. Employing shielding lo prevent LMI
D. Managing key material on a HSM

Answer: D

Explanation:

The beststrategy for securely managing cryptographic material is to use a Hardware Security Module (HSM).

Here's why:

Security and Integrity: HSMs are specialized hardware devices designed to protect and manage digital keys. They provide high levels of physical and logical security, ensuring that cryptographic material is well protected against tampering and unauthorized access.

Centralized Key Management: Using HSMs allows for centralized management of cryptographic keys, reducing the risks associated with decentralized and potentially insecure key storage practices, such as on personal laptops.

Compliance and Best Practices: HSMs comply with various industry standards and regulations (such as FIPS 140-2) for secure key management. This ensures that the organization adheres to best practices and meets compliance requirements.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-57: Recommendation for Key Management

ISO/IEC 19790:2012: Information Technology - Security Techniques - Security Requirements for Cryptographic Modules

Question: 16

[Security Architecture]

Users are willing passwords on paper because of the number of passwords needed in an environment. Which of the following solutions is the best way to manage this situation and decrease risks?

A. Increasing password complexity to require 31 least 16 characters
B. implementing an SSO solution and integrating with applications
C. Requiring users to use an open-source password manager
D. Implementing an MFA solution to avoid reliance only on passwords

Answer: B

Explanation:

Implementing a Single Sign-On (SSO) solution and integrating it with applications is the best way to manage the situation and decrease risks. Here's why:

Reduced Password Fatigue: SSO allows users tolog in once and gain access to multiple applications and systems without needing to remember and manage multiple passwords. This reduces the likelihood of users writing down passwords.

Improved Security: By reducing the number of passwords users need to manage, SSO decreases the attack surface and potential for password-related security breaches. It also allows for the implementation of stronger authentication methods.

User Convenience: SSO improves the user experience by simplifying the login process, which can lead to higher productivity and satisfaction.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl
NIST Special Publication 800-63B: Digital Identity Guidelines - Authentication and Lifecycle Management
OWASP Authentication Cheat Sheet

Question: 17

[Governance, Risk, and Compliance (GRC)]
The material finding from a recent compliance audit indicate a company has an issue with excessive permissions. The findings show that employees changing roles or departments results in privilege creep.
Which of the following solutions are the best ways to mitigate this issue? (Select two).
Setting different access controls defined by business area

A. Implementing a role-based access policy
B. Designing a least-needed privilege policy
C. Establishing a mandatory vacation policy
D. Performing periodic access reviews
E. Requiring periodic job rotation

Answer: A,D

Explanation:

To mitigate the issue of excessive permissions and privilege creep, the best solutions are:
Implementing a Role-Based Access Policy:
Role-Based Access Control (RBAC): This policy ensures that access permissions are granted based on the user's role within the organization, aligning with the principle of least privilege. Users are only granted access necessary for their role, reducing the risk of excessive permissions.
Reference:
CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl
NIST Special Publication 800-53: Security and Privacy Controls for Information Systems and Organizations
Performing Periodic Access Reviews:
RegularAudits: Periodic access reviews help identify and rectify instances of privilege creep by ensuring that users' access permissions are appropriate for their current roles. These reviews can highlight unnecessary or outdated permissions, allowing for timely adjustments.
Reference:
CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl
ISO/IEC 27001:2013 - Information Security Management

Question: 18

[Security Architecture]
A security architect is establishing requirements to design resilience in un enterprise system trial will be extended to other physical locations. The system must

- Be survivable to one environmental catastrophe
- Re recoverable within 24 hours of critical loss of availability
- Be resilient to active exploitation of one site-to-site VPN solution

A. Load-balance connection attempts and data Ingress at internet gateways
B. Allocate fully redundant and geographically distributed standby sites.
C. Employ layering of routers from diverse vendors
D. Lease space to establish cold sites throughout other countries
E. Use orchestration to procure, provision, and transfer application workloads lo cloud services
F. Implement full weekly backups to be stored off-site for each of the company's sites

Answer: B

Explanation:

To design resilience in an enterprise system that can survive environmental catastrophes, recover within 24 hours, and be resilient to active exploitation, the best strategy is to allocate fully redundant and geographically distributed standby sites. Here's why:

Geographical Redundancy: Having geographically distributed standby sites ensures that if one site is affected by an environmental catastrophe, the other sites can take over, providing continuity of operations.

Full Redundancy: Fully redundant sites mean that all critical systems and data are replicated, enabling quick recovery in the event of a critical loss of availability.

Resilience to Exploitation: Distributing resources across multiple sites reduces the risk of a single point of failure and increases resilience against targeted attacks.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-34: Contingency Planning Guide for Federal Information Systems

ISO/IEC 27031:2011 - Guidelines for Information andCommunication Technology Readiness for Business Continuity

Question: 19

[Emerging Technologies and Threats]

Users must accept the terms presented in a captive petal when connecting to a guest network. Recently, users have reported that they are unable to access the Internet after joining the network A network engineer observes the following:

- Users should be redirected to the captive portal.
- The Motive portal runs Tl. S 1 2
- Newer browser versions encounter security errors that cannot be bypassed
- Certain websites cause unexpected re directs

Which of the following mow likely explains this behavior?

A. The TLS ciphers supported by the captive portal ate deprecated
B. Employment of the HSTS setting is proliferating rapidly.
C. Allowed traffic rules are causing the NIPS to drop legitimate traffic
D. An attacker is redirecting supplicants to an evil twin WLAN.

Answer: A

Explanation:

The most likely explanation for the issues encountered with the captive portal is that the TLS ciphers

supported by the captive portal are deprecated. Here's why:

TLS Cipher Suites: Modern browsers are continuously updated to support the latest security standards and often drop support for deprecated and insecure cipher suites. If the captive portal uses outdated TLS ciphers, newer browsers may refuse to connect, causing security errors.

HSTS and Browser Security: Browsers with HTTP Strict Transport Security (HSTS) enabled will not allow connections to sites with weak security configurations. Deprecated TLS ciphers would cause these browsers to block the connection.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-52: Guidelines for the Selection, Configuration, and Use of Transport Layer Security (TLS) Implementations

OWASP Transport LayerProtection Cheat Sheet

By updating the TLS ciphers to modern, supported ones, the security engineer can ensure compatibility with newer browser versions and resolve the connectivity issues reported by users.

Question: 20

[Security Architecture]

A security configure isbuilding a solution to disable weak CBC configuration for remote access connections lo Linux systems. Which of the following should the security engineer modify?

A. The /etc/openssl.conf file, updating the virtual site parameter
B. The /etc/nsswith.conf file, updating the name server
C. The /etc/hosts file, updating the IP parameter
D. The /etc/etc/sshd, configure file updating the ciphers

Answer: D

Explanation:

The sshd_config file is the main configuration file for the OpenSSH server. To disable weak CBC (Cipher Block Chaining) ciphers for SSH connections, the security engineer should modify the sshd_config file to update the list of allowed ciphers. This file typically contains settings for the SSH daemon, including which encryption algorithms are allowed.

By editing the /etc/ssh/sshd_config file and updating the Ciphers directive, weak ciphers can be removed, and only strong ciphers can be allowed. This change ensures that the SSH server does not use insecure encryption methods.

Reference:

CompTIA Security+ Study Guide

OpenSSH manual pages (man sshd_config)

CIS Benchmarks for Linux

Question: 21

[Emerging Technologies and Threats]

A security team is responding to malicious activity and needs to determine the scope of impact the malicious activity appears to affect certain version of an application used by the organization Which of the following actions best enables the team to determine the scope of Impact?

A. Performing a port scan
B. Inspecting egress network traffic
C. Reviewing the asset inventory
D. Analyzing user behavior

Answer: C

Explanation:

Reviewing the asset inventory allows the security team to identify all instances of the affected application versions within the organization. By knowing which systems are running the vulnerable versions, the team can assess the full scope of the impact, determine which systems might be compromised, and prioritize them for further investigation and remediation.

Performing a port scan (Option A) might help identify open ports but does not provide specific information about theapplication versions. Inspecting egress network traffic (Option B) and analyzing user behavior (Option D) are important steps in the incident response process but do not directly identify which versions of the application are affected.

Reference:

CompTIA Security+ Study Guide

NIST SP 800-61 Rev. 2, "Computer Security Incident Handling Guide"

CIS Controls, "Control 1: Inventory and Control of Hardware Assets" and "Control 2: Inventory and Control of Software Assets"

Question: 22

[Security Architecture]

A software development team requires valid data for internal tests. Company regulations, however do not allow the use of this data in cleartext. Which of the following solutions best meet these requirements?

A. Configuring data hashing
B. Deploying tokenization
C. Replacing data with null record
D. Implementing data obfuscation

Answer: B

Explanation:

Tokenization replaces sensitive data elements with non-sensitive equivalents, called tokens, that can be used within the internal tests. The original data is stored securely and can be retrieved if necessary. This approach allows the software development team to work with data that appears realistic and valid without exposing the actual sensitive information.

Configuring data hashing (Option A) is not suitable for test data as ittransforms the data into a fixed- length value that is not usable in the same way as the original data. Replacing data with null records (Option C) is not useful as it does not provide valid data for testing. Data obfuscation (Option D) could be an alternative but might not meet the regulatory requirements as effectively as tokenization. Reference:

CompTIA Security+ Study Guide
NIST SP 800-57 Part 1 Rev. 5, "Recommendation for Key Management"
PCI DSS Tokenization Guidelines

Question: 23

[Emerging Technologies and Threats]
An organization is developing on Al-enabled digital worker to help employees complete common tasks such as template development, editing, research, and scheduling. As part of the Al workload the organization wants to Implement guardrails within the platform. Which of the following should the company do to secure the Al environment?

A. Limn the platform's abilities to only non-sensitive functions
B. Enhance the training model's effectiveness.
C. Grant the system the ability to self-govern
D. Require end-useracknowledgement of organizational policies.

Answer: A

Explanation:

Limiting the platform's abilities to only non-sensitive functions helps to mitigate risks associated with AI operations. By ensuring that the AI-enabled digital worker is only allowed to perform tasks that do not involve sensitive or critical data, the organization reduces the potential impact of any security breaches or misuse.
Enhancing the training model's effectiveness (Option B) is important but does not directly address security guardrails. Granting the system the ability to self-govern (Option C) could increase risk as it may act beyond the organization's control. Requiring end-user acknowledgement of organizational policies (Option D) is a good practice but does not implement technical guardrails to secure the AI environment.
Reference:
CompTIA Security+ Study Guide
NIST SP 800-53 Rev. 5, "Security and Privacy Controls for Information Systems and Organizations" ISO/IEC 27001, "Information Security Management"

Question: 24

[Governance, Risk, and Compliance (GRC)]
A hospital provides tablets to its medical staff to enable them to more quickly access and edit patients' charts. The hospital wants to ensure that if a tablet is identified as lost or stolen and a remote command is issued, the risk of data loss can be mitigated within seconds. The tablets are configured as follows:

- Full disk encryption is enabled.
- "Always On" corporate VPN is enabled.
- eFuse-backed keystore is enabled.
- Wi-Fi 6 is configured with SAE.
- Location services is disabled.
- Application allow list is unconfigured.

Assuming the hospital policy cannot be changed, which of the following is the best way to meet the

hospital's objective?

A. Revoke the user VPN and Wi-Fi certificates
B. Cryptographically erase FDE volumes
C. Issue new MFA credentials to all users
D. Configure the application allow list

Answer: B

Explanation:

The key requirement is toinstantly eliminate data losson a lost device.
Cryptographic erasureworks by deleting encryption keys used for FDE (full disk encryption), rendering all data unrecoverable within seconds — satisfying the "mitigate within seconds" requirement.
Revoking certificates won't wipe the data from a lost tablet.
Changing MFA credentials won't help unless the device is secured, and app allow lists don't apply post-loss.
FromCAS-005, Domain 3: Secure Systems Design and Deployment:
"Cryptographic erase (CE) renders data irrecoverable by deleting encryption keys used to protect data on the device."
Reference:CAS-005 Guide, Chapter 9: Endpoint Security, pg. 178–180

Question: 25

[Governance, Risk, and Compliance (GRC)]
A company hosts a platform-as-a-service solution with a web-based front end, through which customer interact with data sets. A security administrator needs to deploy controls to prevent application-focused attacks. Which of the following most directly supports the administrator's objective'

A. improving security dashboard visualization on SIEM
B. Rotating API access and authorization keys every two months
C. Implementing application toad balancing and cross-region availability
D. Creating WAF policies for relevant programming languages

Answer: D

Explanation:

The best way to prevent application-focused attacks for a platform-as-a-service solution with a webbased front end is to create Web Application Firewall (WAF) policies for relevant programming languages. Here's why:
Application-Focused Attack Prevention: WAFs are designed to protect web applications by filtering and monitoring HTTP traffic between a web application and the Internet. They help prevent attacks such as SQL injection, cross-site scripting (XSS), and other application-layer attacks.
Customizable Rules: WAF policies can be tailored to the specific programming languages and frameworks used by the web application, providing targeted protection based on known vulnerabilities and attack patterns.

Real-Time Protection: WAFs provide real-time protection, blocking malicious requests before they reach the application, thereby enhancing the security posture of the platform.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

OWASP Top Ten: Web Application Security Risks

NIST Special Publication 800-95: Guide to Secure Web Services

Question: 26

[Security Architecture]

A security analyst is reviewing the following log:

TirriS	^21- "YP =	Sizt	ajit-ivlz U* 3 1 3 ^ Z. 3	Z-C C LZL Z a
11:25	ISTt	25n±	blozk	= : ■
11; 27	ill	1 j—±	all zw	.-: ■ t WEf
	OcJC	STnt	dK	ci \jiUNU^At\uf^Hrl XD^l! cop
11 :	r^-	llnzt	a 1.1 aw	~: ■.u n c ra \ anarl \ "own 1 oada
11: 23	TKt	49itk	al l z w	: : use 273 '■ as er[1]3 •■. Dscuitiezit 3

Which of the following possible events should the security analyst investigate further?

A. A macro that was prevented from running
B. A text file containing passwords that were leaked
C. A malicious file that was run in this environment
D. A PDF that exposed sensitive information improperly

Answer: B

Explanation:

Based on the log provided, the most concerning event that should be investigated further is the presence of a text file containing passwords that were leaked. Here's why:

Sensitive Information Exposure: A text file containing passwords represents a significant security risk, as it indicates that sensitive credentials have been exposed in plain text, potentially leading to unauthorized access.

Immediate Threat: Password leaks can lead to immediate exploitation by attackers, compromising user accounts and sensitive data. This requires urgent investi

Question: 27

[Governance, Risk, and Compliance (GRC)]

A systems administrator wants to use existing resources to automate reporting from disparate security appliances that do not currently communicate. Which of the following is the best way to meet this objective?

A. Configuring an API Integration to aggregate the different data sets
B. Combining back-end application storage into a single, relational database
C. Purchasing and deploying commercial off the shelf aggregation software
D. Migrating application usage logs to on-premises storage

Answer: A

Explanation:

The best way to automate reporting from disparate security appliances that do not currently communicate is to configure an API Integration to aggregate the different data sets. Here's why: Interoperability: APIs allow different systems to communicate and share data, even if they were not originally designed to work together. This enables the integration of various security appliances into a unified reporting system.

Automation: API integrations can automate the process of data collection, aggregation, and reporting, reducing manual effort and increasing efficiency.

Scalability: APIs provide a scalable solution that can easily be extended to include additional security appliances or data sources as needed.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-95: Guide to Secure Web Services

OWASP API Security Top Ten

Question: 28

[Security Engineering and Cryptography]

A developer needs toimprove the cryptographic strength of a password-storage component in a web application without completely replacing the crypto-module. Which of the following is the most appropriate technique?

A. Key splitting
B. Key escrow
C. Key rotation
D. Key encryption
E. Key stretching

Answer: E

Explanation:

The most appropriate technique to improve the cryptographic strength of a password-storage component in a web application without completely replacing the crypto-module is key stretching. Here's why:

Enhanced Security: Key stretching algorithms, such as PBKDF2, bcrypt, and scrypt, increase the computational effort required to derive the encryption key from the password, making brute-force attacks more difficult and time-consuming.

Compatibility: Key stretching can be implemented alongside existing cryptographic modules, enhancing their security without the need for a complete overhaul.

Industry Best Practices: Key stretching is a widely recommended practice for securely storing passwords, as it significantly improves resistance to password-cracking attacks.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-63B: Digital Identity Guidelines - Authentication and Lifecycle Management

OWASP Password Storage Cheat Sheet

Question: 29

[Emerging Technologies and Threats]

A company receives several complaints from customers regarding its website. An engineer implements a parser for the web server logs that generates the following output:

Ex: K 3ax	U*^r LOZBT-CF.	Izzo ~LOje	HTTP x~3gor.se
Moz111a 5.0	■J -1—ex	1 ^Ome	302
CHr^^TM HQ	Fr-PCA	' - rl	30S
Miexoacfo Edge	■ r. 2 : e		2£7
I-Iicxosofo Edge	i.sxoelLi	f.4a	250

which of the following should the company implement to best resolve the issue?

A. IDS
B. CDN
C. WAF
D. NAC

Answer: B

Explanation:

The table indicates varying load times for users accessing the website from different geographic locations. Customers from Australia and India are experiencingsignificantly higher load times compared to those from the United States. This suggests that latency and geographical distance are affecting the website's performance.

A . IDS (Intrusion Detection System): While an IDS is useful for detecting malicious activities, it does not address performance issues related to latency and geographical distribution of content.

B . CDN (Content Delivery Network): A CDN stores copies of the website's content in multiple geographic locations. By serving content from the nearest server to the user, a CDN can significantly reduce load times and improve user experience globally.

C . WAF (Web Application Firewall): A WAF protects web applications by filtering and monitoring HTTP traffic but does not improve performance related to geographical latency.

D . NAC (Network Access Control): NAC solutions control access to network resources but are not designed to address web performance issues.

Implementing a CDN is the best solution to resolve the performance issues observed in the log output.

Reference:

CompTIA Security+ Study Guide

"CDN: Content Delivery Networks Explained" by Akamai Technologies

NIST SP 800-44, "Guidelines on Securing Public Web Servers"

Question: 30

[Identity and Access Management (IAM)]

A security officer received several complaints from usersabout excessive MPA push notifications at night The security team investigates and suspects malicious activities regarding user account authentication Which of the following is the best way for the security officer to restrict MI~A notifications''

A. Provisioning FID02 devices
B. Deploying a text message based on MFA
C. Enabling OTP via email
D. Configuring prompt-driven MFA

Answer: D

Explanation:

Excessive MFA push notifications can be a sign of an attempted push notification attack, where attackers repeatedly send MFA prompts hoping the user will eventually approve one by mistake. To mitigate this:

A . Provisioning FIDO2 devices: While FIDO2 devices offer strong authentication, they may not be practical for all users and do not directly address the issue of excessive push notifications.

B . Deploying a text message-based MFA: SMS-based MFA can still be vulnerable to similar spamming attacks and phishing.

C . Enabling OTP via email: Email-based OTPs add another layer of security but do not directly solve the issue of excessive notifications.

D . Configuring prompt-driven MFA: This option allows users to respond to prompts in a secure manner, often including features like time-limited approval windows, additional verification steps, or requiring specificactions to approve. This can help prevent users from accidentally approving malicious attempts.

Configuring prompt-driven MFA is the best solution to restrict unnecessary MFA notifications and improve security.

Reference:

CompTIA Security+ Study Guide

NIST SP 800-63B, "Digital Identity Guidelines"

"Multi-Factor Authentication: Best Practices" by Microsoft

Question: 31

[Security Architecture]

A security professional is investigating a trend in vulnerability findings for newly deployed cloud systems Given the following output:

Cere	I F a dd XT 5 3	3yM.-r. name	Finding	Or T. 1 I-.A . 1.7 ratine
107.13/ 2223	10.123 .24.32	1 ya t emi	CpenJul veraxsn 1.01	Medium.
1213/2:23	10.3.1 14.72	Sys t site	Open&SL version 1.01	Medium
12'13/2222	10.12. 134.45	system! 2	J«v« 11 runtitt'* envxromaenn found	Med runs.
12-12: 2 223	**_2.£B.** G= .11	3yatem.3G	OpenSEX. veraxon. 1.01	Medium
I':/I 3'2 >.?.	**10.23-** .'4.9	?yot t«m37	Java 11 runt rise A nv ; r^n/nanr. found!	Mad 1 uni
1 /12Z2 122	-.2.12. 12 4.2	3 ya-COITUS	OpenSHl version 1 . '.	Me d x urn

Which of the following actions would address the root cause of this issue?

A. Automating the patching system to update base Images
B. Recompiling the affected programs with the most current patches
C. Disabling unused/unneeded ports on all servers
D. Deploying a WAF with virtual patching upstream of the affected systems

Answer: A

Explanation:

The output shows that multiple systems have outdated or vulnerable software versions (OpenSSL 1.01 and Java 11 runtime). This suggests that the systems are not being patched regularly or effectively.

A . Automating the patching system to update base images: Automating the patching process ensures that the latest security updates and patches are applied to all systems, including newly deployed ones. This addresses the root cause by ensuring that base images used for deployment are
always up-to-date with the latest security patches.

B . Recompiling the affected programs with the most current patches: While this can fix the immediate vulnerabilities, it does not address the root cause of the problem, which is the lack of regular updates.

C . Disabling unused/unneeded ports on all servers: This improves security but does not address the specific issue of outdated software.

D . Deploying a WAF with virtual patching upstream of the affected systems: This can provide a temporary shield but does not resolve the underlying issue of outdated software.

Automating the patching system to update base images ensures that all deployed systems are using the latest, most secure

versions of software, addressing the root cause of the vulnerability trend. Reference:
CompTIA Security+ Study Guide
NIST SP 800-40 Rev. 3, "Guide to Enterprise Patch Management Technologies"
CIS Controls, "Control 7: Continuous Vulnerability Management"

Question: 32

[Security Engineering and Cryptography]
Which of the following best describes the challenges associated with widespread adoption of homomorphic encryption techniques?

A. Incomplete mathematical primitives
B. No use cases to drive adoption
C. Quantum computers not yetcapable
D. insufficient coprocessor support

Answer: D

Explanation:

Homomorphic encryption allows computations to be performed on encrypted data without decrypting it, providing strong privacy guarantees. However, the adoption of homomorphic encryption is challenging due to several factors:
A . Incomplete mathematical primitives: This is not the primary barrier as the theoretical foundations of homomorphic encryption are well-developed.
B . No use cases to drive adoption: There are several compelling use cases for homomorphic encryption, especially in privacy-sensitive fields like healthcare and finance.
C . Quantum computers not yet capable: Quantum computing is not directly related to the challenges of adopting homomorphic encryption.
D . Insufficient coprocessor support: The computational overhead of homomorphic encryption is significant, requiring substantial processing power. Current general-purpose processors are not optimized for the intensive computations required by homomorphic encryption, limiting its practical deployment. Specialized hardware or coprocessors designed to handle these computations more efficiently are not yet widely available.
Reference:
CompTIA Security+ Study Guide
"Homomorphic Encryption: Applications and Challenges" by Rivest et al.
NIST, "Report on Post-Quantum Cryptography"

Question: 33

[Security Architecture]
After some employees were caught uploading data to online personal storage accounts, a company becomes concerned about data leaks related to sensitive, internal documentation. Which of the following would the company most likely do to decrease this type of risk?

A. Improve firewall rules to avoid access to those platforms.
B. Implement a cloud-access security broker

C. Create SIEM rules to raise alerts for access to those platforms
D. Deploy an internet proxy that filters certain domains

Answer: B

Explanation:

A Cloud Access Security Broker (CASB) is a security policy enforcement point placed between cloud service consumers and cloud service providers to combine and interject enterprise security policies as cloud-based resources are accessed. Implementing a CASB provides several benefits:

A . Improve firewall rules to avoid access to those platforms: This can help but is not as effective or comprehensive as a CASB.

B . Implement a cloud-access security broker: A CASB can provide visibility into cloud application usage, enforce data security policies, and protect against data leaks by monitoring and controlling access to cloud services. It also provides advanced features like data encryption, data loss prevention (DLP), and compliance monitoring.

C . Create SIEM rules to raise alerts for access to those platforms: This helps in monitoring but does not prevent data leaks.

D . Deploy an internet proxy that filters certain domains: This can block access to specific sites but lacks the granular control and visibility provided by a CASB.

Implementing a CASB is the most comprehensive solution to decrease the risk of data leaks by providing visibility, control, and enforcement of security policies for cloud services.

Reference:

CompTIA Security+ Study Guide

Gartner, "Magic Quadrant for Cloud Access Security Brokers"

NIST SP 800-144, "Guidelines on Security and Privacy in Public Cloud Computing"

Question: 34

[Identity and Access Management (IAM)]

An organization wants to create a threat model to identity vulnerabilities in its infrastructure. Which of the following, should be prioritized first?

A. External-facing Infrastructure with known exploited vulnerabilities
B. Internal infrastructure with high-seventy and Known exploited vulnerabilities
C. External facing Infrastructure with a low risk score and no known exploited vulnerabilities
D. External-facing infrastructure with a high risk score that can only be exploited with local access to the resource

Answer: A

Explanation:

Whencreating a threat model to identify vulnerabilities in an organization's infrastructure, prioritizing external-facing infrastructure with known exploited vulnerabilities is critical. Here's why: Exposure to Attack: External-facinginfrastructure is directly exposed to the internet, making it a primary target for attackers. Any vulnerabilities in this layer pose an immediate risk to the organization's security.

Known Exploited Vulnerabilities: Vulnerabilities that are already known and exploited in the wild are of higher concern because they are actively being used by attackers. Addressing these vulnerabilities reduces the risk of exploitation significantly.

Risk Mitigation: By prioritizing external-facing infrastructure with known exploited vulnerabilities, the organization can mitigate the most immediate and impactful threats, thereby improving overall security posture.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-30: Guide for Conducting Risk Assessments

OWASP Threat Modeling Cheat Sheet

Question: 35

[Governance, Risk, and Compliance (GRC)]

A central bank implements strict risk mitigations for the hardware supply chain, including an allow list for specific countries of origin. Which of the following best describes the cyberthreat to the bank?

A. Ability to obtain components during wartime
B. Fragility and other availability attacks
C. Physical Implants and tampering
D. Non-conformance to accepted manufacturing standards

Answer: C

Explanation:

The best description of the cyber threat to a central bank implementing strict risk mitigations for the hardware supply chain, including an allow list for specific countries of origin, is the risk of physical implants and tampering. Here's why:

Supply Chain Security: The supply chain is a critical vector for hardware tampering and physical implants, which can compromise the integrity and security of hardware components before they reach the organization.

Targeted Attacks: Banks and financial institutions are high-value targets, making them susceptible to sophisticated attacks, including those involving physical implants that can be introduced during manufacturing or shipping processes.

Strict Mitigations: Implementing an allow list for specific countries aims to mitigate the risk of supply chain attacks by limiting the sources of hardware. However, the primary concern remains the introduction of malicious components through tampering.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-161: Supply Chain Risk Management Practices for Federal Information Systems and Organizations

ISO/IEC 20243:2018 - Information Technology - Open Trusted Technology Provider Standard

Question: 36

[Security Architecture]

Third partiesnotified a company's security team about vulnerabilities in the company's application. The security team

determined these vulnerabilities were previously disclosed in third-party libraries. Which of the following solutions best addresses the reported vulnerabilities?

A. Using laC to include the newest dependencies
B. Creating a bug bounty program
C. Implementing a continuous security assessment program
D. Integrating a SASI tool as part of the pipeline

Answer: D

Explanation:

The best solution to address reported vulnerabilities in third-party libraries is integrating a Static Application Security Testing (SAST) tool as part of the development pipeline. Here's why: Early Detection: SAST tools analyze source code for vulnerabilities before the code is compiled. This allows developers to identify and fix security issues early in the development process.
Continuous Security: By integrating SAST tools into the CI/CD pipeline, the organization ensures continuous security assessment of the codebase, including third-party libraries, with each code commit and build.
Comprehensive Analysis: SAST tools provide a detailed analysis of the code, identifying potential vulnerabilities in both proprietary code and third-party dependencies, ensuring that known issues in libraries are addressed promptly.
Reference:
CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl
OWASP Static Analysis Security Testing (SAST) Cheat Sheet
NIST Special Publication 800-53: Security and Privacy Controls for Information Systems and Organizations

Question: 37

[Security Architecture]
While reviewing recent modem reports, a security officer discovers that several employees were contacted by the same individual who impersonated a recruiter. Which of the following best describes this type of correlation?

A. Spear-phishing campaign
B. Threat modeling
C. Red team assessment
D. Attack pattern analysis

Answer: A

Explanation:

The situation where several employees were contacted by the same individual impersonating a recruiter best describes aspear-phishing campaign. Here's why:
Targeted Approach: Spear-phishing involves targeting specific individuals within an organization with personalized and convincing messages to trick them into divulging sensitive information or performing actions that compromise security.
Impersonation: The use of impersonation, in this case, a recruiter, is a common tactic in spearphishing to gain the trust of the targeted individuals and increase the likelihood of a successful attack.

Correlated Contacts: The fact that several employees were contacted by the same individual suggests a coordinated effort to breach the organization's security by targeting multiple points of entry through social engineering.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-61: Computer Security Incident Handling Guide

OWASP Phishing Cheat Sheet

Question: 38

[Security Architecture]

During a security assessment using an CDR solution, a security engineer generates the following report about the assets in me system:

Device	Type	flatus
LNM2	Lmux SL	Envied (unmanaged)
0WIN23	Windows 7	Enabled
C-WIN29	Windows 10	Enabled (bypass)

After five days, the EDR console reports an infection on the host 0WIN23 by a remote access Trojan Which of the following is the most probable cause of the infection?

A. OW1N23 uses a legacy version of Windows that is not supported by the EDR
B. LN002 was not supported by the EDR solution and propagates the RAT
C. The EDR has an unknown vulnerability that was exploited by the attacker.
D. 0W1N29 spreads the malware through other hosts in the network

Answer: A

Explanation:

OWIN23 is running Windows 7, which is a legacy operating system. Many EDR solutions no longer provide full support for outdated operating systems like Windows 7, which has reached its end of life and is no longer receiving security updates from Microsoft. This makes such systems more vulnerable to infections and attacks, including remote access Trojans (RATs).

A . OWIN23 uses a legacy version of Windows that is not supported by the EDR: This is the most probable cause because the lack of support means that the EDR solution may not fully protect or monitor this system, making it an easy target for infections.

B . LN002 was not supported by the EDR solution and propagates the RAT: While LN002 is unmanaged, it is less likely to propagate the RAT to OWIN23 directly without an established vector. C . The EDR has an unknown vulnerability that was exploited by the attacker: This is possible but less likely than the lack of support for an outdated OS.

D . OWIN29 spreads the malware through other hosts in the network: While this could happen, the status indicates OWIN29 is in a bypass mode, which might limit its interactions but does not directly explain the infection on OWIN23.

Reference:

CompTIA Security+ Study Guide

NIST SP 800-53, "Security and Privacy Controls forInformation Systems and Organizations"

Microsoft's Windows 7 End of Support documentation

Question: 39

[Security Engineering and Cryptography]

Emails that the marketing department is sending to customers are pomp to the customers' spam folders. The security team is investigating the issue and discovers that the certificates used by the email server were reissued, but DNS records had not been updated. Which of the following should the security team update in order to fix this issue? (Select three.)

A. DMARC
B. SPF
C. DKIM
D. DNSSEC
E. SASC
F. SAN
G. SOA
H. MX

Answer: A,B,C

Explanation:

To prevent emails from being marked as spam, several DNS records related to email authentication need to be properly configured and updated when there are changes to the email server'scertificates:

A . DMARC (Domain-based Message Authentication, Reporting & Conformance): DMARC records help email servers determine how to handle messages that fail SPF or DKIM checks, improving email deliverability and reducing the likelihood of emails being marked as spam.

B . SPF (Sender Policy Framework): SPF records specify which mail servers are authorized to send email on behalf of your domain. Updating the SPF record ensures that the new email server is recognized as an authorized sender.

C . DKIM (DomainKeys Identified Mail): DKIM adds a digital signature to email headers, allowing the receiving server to verify that the email has not been tampered with and is from an authorized sender. Updating DKIM records ensures that emails are properly signed and authenticated.

D . DNSSEC (Domain Name System Security Extensions): DNSSEC adds security to DNS by enabling DNS responses to be verified. While important for DNS security, it does not directly address the issue of emails being marked as spam.

E . SASC: This is not a relevant standard for this scenario.

F . SAN (Subject Alternative Name): SAN is used in SSL/TLS certificates for securing multiple domain names, not for email delivery issues.

G . SOA (Start of Authority): SOA records are used for DNS zone administration and do not directly impact email deliverability.

H . MX (Mail Exchange): MX records specify the mail servers responsible for receiving email on behalf of a domain. While important, the primary issue here is the authentication of outgoing emails, which is handled by SPF, DKIM, and DMARC.

Reference:

CompTIA Security+ Study Guide

RFC 7208 (SPF), RFC 6376 (DKIM), and RFC 7489 (DMARC)

NIST SP 800-45, "Guidelines on Electronic Mail Security"

Question: 40

[Security Engineering and Cryptography]

Users are experiencing a variety of issueswhen trying to access corporate resources examples include

- Connectivity issues between local computers and file servers within branch offices
- Inability to download corporate applications on mobile endpoints wtiilc working remotely
- Certificate errors when accessing internal web applications

Which of the following actions are the most relevant when troubleshooting the reported issues? (Select two).

A. Review VPN throughput
B. Check IPS rules
C. Restore static content on lite CDN.
D. Enable secure authentication using NAC
E. Implement advanced WAF rules.
F. Validate MDM asset compliance

Answer: A,F

Explanation:

The reported issues suggest problems related to network connectivity, remote access, and certificate management:

A . Review VPN throughput: Connectivity issues and the inability to download applications while working remotely may be due to VPN bandwidth or performance issues. Reviewing and optimizing VPN throughput can help resolve these problems by ensuring that remote users have adequate bandwidth for accessing corporate resources.

F . Validate MDM asset compliance: Mobile Device Management (MDM) systems ensure that mobile endpoints comply with corporate security policies. Validating MDM compliance can help address issues related to the inability to download applications and certificate errors, as non-compliant devices might be blocked from accessing certain resources.

B . Check IPS rules: While important for security, IPS rules are less likely to directly address the connectivity and certificate issues described.

C . Restore static content on the CDN: This action is related to content delivery but does not address VPN or certificate-related issues.

D . Enable secure authentication using NAC: Network Access Control (NAC) enhances security but does not directly address the specific issues described.

E . Implement advanced WAF rules: Web Application Firewalls protect web applications but do not address VPN throughput or mobile device compliance.

Reference:

CompTIA Security+ Study Guide

NIST SP800-77, "Guide to IPsec VPNs"

CIS Controls, "Control 11: Secure Configuration for Network Devices"

Question: 41

[Security Architecture]

A software engineer is creating a CI/CD pipeline to support the development of a web application The DevSecOps team is required to identify syntax errors Which of the following is the most relevant to the DevSecOps team's task'

A. Static application security testing

B. Software composition analysis
C. Runtime application self-protection
D. Web application vulnerability scanning

Answer: A

Explanation:

Static Application Security Testing (SAST) involves analyzing source code or compiled code for security vulnerabilities without executing the program. This method is well-suited for identifying syntax errors, coding standards violations, and potential security issues early in the development lifecycle.

A . Static application security testing (SAST): SAST tools analyze the source code to detect syntax errors, vulnerabilities, and other issues before the code is run. This is the most relevant task for the DevSecOps team to identify syntax errors and improve code quality.

B . Software composition analysis: This focuses on identifying vulnerabilities in open-source components and libraries used in the application but does not address syntax errors directly.

C . Runtime application self-protection (RASP): RASP involves monitoring and protecting applications during runtime, which does not help in identifying syntax errors during the development phase.

D . Web application vulnerability scanning: This involves scanning the running application for vulnerabilities but does not address syntax errors in the code.

Reference:

CompTIA Security+ Study Guide

OWASP (Open Web Application Security Project) guidelines on SAST

NIST SP 800-95, "Guide to Secure Web Services"

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Question: 42

[Security Architecture]

An organization is looking for gaps in its detection capabilities based on the APTs that may target the industry Which of the following should the security analyst use to perform threatmodeling?

A. ATT&CK
B. OWASP
C. CAPEC
D. STRIDE

Answer: A

Explanation:

The ATT&CK (Adversarial Tactics, Techniques, and Common Knowledge) framework is the best tool for a security analyst to use for threat modeling when looking for gaps in detection capabilities based on Advanced Persistent Threats (APTs) that may target the industry. Here's why: Comprehensive Framework: ATT&CK provides a detailed and structured repository of

known adversary tactics and techniques based on real-world observations. It helps organizations understand how attackers operate and what techniques they might use.

Gap Analysis: By mapping existing security controls against the ATT&CK matrix, analysts can identify which tactics and techniques are not adequately covered by current detection and mitigation measures.

Industry Relevance: The ATT&CK framework is continuously updated with the latest threat intelligence, making it highly relevant for industries facing APT threats. It provides insights into specific APT groups and their preferred methods of attack.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

MITRE ATT&CK Framework Official Documentation

NIST Special Publication 800-150: Guide to Cyber Threat Information Sharing

Question: 43

[Governance, Risk, and Compliance (GRC)]

Recent repents indicate that a software tool is being exploited Attackers were able to bypass user access controls and load a database. A security analyst needs to find the vulnerability and recommend a mitigation. The analyst generates the following output:

?T *W^.Dtt.1iL Lee a1-"sc r _' : ' ■ r.“ т j. i i " 1 z cal "=ex !■■. e 1 z z ~. s
TB# ctnmatid r-1 rap Et9 b “■= au T-c^f ±i PJ L Ly L
C;\>cshloadcx .exe 1 zea . —user WoLexane ■
Ir.a-zz zz..zzor.z fsnni a ziz-z . Now Clzsir.g . . . w? X>s t-z . n^- dhloadoz.exo
•Thia pxoararr, cannot he run zr. DOE Moae ZD12 idDr.
Lcad Da taJza4s ' l r. 132 r*nx ^D.:.-=k : a h: L 7 3 I-I> . ■■
Z ! ',>ahLoadex . exo admin. :iSl 2aa3r

Which of the following would the analyst most likely recommend?

A. Installing appropriate EDR tools to block pass-the-hash attempts
B. Adding additional time to software development to perform fuzz testing
C. Removing hard coded credentials from the source code
D. Not allowing users to change their local passwords

Answer: C

Explanation:

The output indicates that the software tool contains hard-coded credentials, which attackers can exploit to bypass user access controls and load the database. The mostlikely recommendation is to remove hard-coded credentials from the source code. Here's why:

Security Best Practices: Hard-coded credentials are a significant security risk because they can be easily discovered through reverse engineering or simple inspection of the code. Removing them reduces the risk of unauthorized access.

Credential Management: Credentials should be managed securely using environment variables, secure vaults, or configuration management tools that provide encryption and access controls. Mitigation of Exploits: By eliminating hard-coded credentials, the organization can prevent attackers from easily bypassing authentication mechanisms and gaining unauthorized access to sensitive systems.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

OWASP Top Ten: Insecure Design

NIST Special Publication 800-53: Security and Privacy Controls for Information Systems and Organizations

Question: 44

[Governance, Risk, and Compliance (GRC)]

A company wants to install a three-tier approach to separate the web. database, and application servers A security administrator must harden the environment which of the following is the best solution?

A. Deploying a VPN to prevent remote locations from accessing server VLANs
B. Configuring a SASb solution to restrict users to server communication
C. Implementing microsegmentation on the server VLANs
D. installing a firewall and making it the network core

Answer: C

Explanation:

The best solution to harden a three-tier environment (web, database, and application servers) is to implement microsegmentation on the server VLANs. Here's why:

Enhanced Security: Microsegmentation creates granular security zones within the data center, allowing for more precise control over east-west traffic between servers. This helps prevent lateral movement by attackers who may gain access to one part of the network.

Isolation of Tiers: By segmenting the web, database, and application servers, the organization can apply specific security policies and controls to each segment, reducing the risk of cross-tier attacks. Compliance and Best Practices: Microsegmentation aligns with best practices for network security and helps meet compliance requirements by ensuring that sensitive data and systems are properly isolated and protected.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-125: Guide to Security for Full Virtualization Technologies

CIS Controls: Control 12 - Boundary Defense

Question: 45

[Security Architecture]

A security architect wants to develop abaseline of security configurations These configurations automatically will be utilized machine is created Which of the following technologies should the security architect deploy to accomplish this goal?

A. Short
B. GASB
C. Ansible
D. CMDB

Answer: C

Explanation:

To develop a baseline of security configurations that will be automatically utilized when a machine is created, the security architect should deploy Ansible. Here's why:

Automation: Ansible is an automation tool that allows for the configuration, management, and deployment of applications and systems. It ensures that security configurations are consistently applied across all new machines.
Scalability: Ansible can scale to manage thousands of machines, making it suitable for large enterprises that need to maintain consistent security configurations across their infrastructure. Compliance: By using Ansible, organizations can enforce compliance with security policies and standards, ensuring that all systems are configured according to best practices.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

Ansible Documentation: Best Practices

NIST Special Publication 800-40: Guide to Enterprise Patch Management Technologies

Question: 46

[Emerging Technologies and Threats]

A company updates itscloud-based services by saving infrastructure code in a remote repository. The code is automatically deployed into the development environment every time the code is saved lo the repository The developers express concern that the deployment often fails, citing minor code issues and occasional security control check failures in the development environment Which of the following should a security engineer recommend to reduce the deployment failures? (Select two).

A. Software composition analysis
B. Pre-commit code linting
C. Repository branch protection
D. Automated regression testing
E. Code submit authorization workflow
F. Pipeline compliance scanning

Answer: B,D

Explanation:

B . Pre-commit code linting: Linting tools analyze code for syntax errors andadherence to coding standards before the code is committed to the repository. This helps catch minor code issues early in the development process, reducing the likelihood of deployment failures.

D . Automated regression testing: Automated regression tests ensure that new code changes do not introduce bugs or regressions into the existing codebase. By running these tests automatically during the deployment process, developers can catch issues early and ensure the stability of the development environment.

Other options:

A . Software composition analysis: This helps identify vulnerabilities in third-party components but does not directly address code quality or deployment failures.

C . Repository branch protection: While this can help manage the code submission process, it does not directly prevent deployment failures caused by code issues or security check failures.

E . Code submit authorization workflow: This manages who can submit code but does not address the quality of the code being submitted.

F . Pipeline compliance scanning: This checks for compliance with security policies but does not address syntax or regression issues.

Reference:

CompTIA Security+ Study Guide
"Continuous Integration and Continuous Delivery" by Jez Humble and David Farley
OWASP (Open Web Application Security Project) guidelines on secure coding practices

Question: 47

[Emerging Technologies and Threats]
A financial technology firm works collaboratively with business partners in the industry to share threat intelligence within a central platform This collaboration gives partner organizations the ability to obtain and share data associated with emerging threats from a variety of adversaries Which of the following should the organization most likely leverage to facilitate this activity? (Select two).

A. CWPP
B. YAKA
C. ATTACK
D. STIX
E. TAXII
F. JTAG

Answer: D,E

Explanation:

D . STIX (Structured Threat Information eXpression): STIX is a standardized language for representing threat information in a structured and machine-readable format. It facilitates the sharing ofthreat intelligence by ensuring that data is consistent and can be easily understood by all parties involved.
E . TAXII (Trusted Automated eXchange of Indicator Information): TAXII is a transport mechanism that enables the sharing of cyber threat information over a secure and trusted network. It works in conjunction with STIX to automate the exchange of threat intelligence among organizations.
Other options:
A . CWPP (Cloud Workload Protection Platform): This focuses on securing cloud workloads and is not directly related to threat intelligence sharing.
B . YARA: YARA is used for malware research and identifying patterns in files, but it is not a platform for sharing threat intelligence.
C . ATT&CK: This is a knowledge base of adversary tactics andtechniques but does not facilitate the sharing of threat intelligence data.
F . JTAG: JTAG is a standard for testing and debugging integrated circuits, not related to threat intelligence.
Reference:
CompTIA Security+ Study Guide
"STIX and TAXII: The Backbone of Threat Intelligence Sharing" by MITRE
NIST SP 800-150, "Guide to Cyber Threat Information Sharing"

Question: 48

[Emerging Technologies and Threats]
An organization mat performs real-time financial processing is implementing a new backup solution
Given the following business requirements?

* The backup solution must reduce the risk for potential backup compromise
* The backup solution must be resilient to a ransomware attack.
* The time to restore from backups is less important than the backup data integrity
* Multiple copies of production data must be maintained

Which of the following backup strategies best meets these requirement?

A. Creating a secondary, immutable storage array and updating it with live data on a continuous basis
B. Utilizing two connected storage arrays and ensuring the arrays constantly sync
C. Enabling remote journaling on the databases to ensure real-time transactions are mirrored
D. Setting up antitempering on the databases to ensure data cannot be changed unintentionally

Answer: A

Explanation:

A . Creating a secondary, immutable storage array and updating it with live data on a continuous basis: An immutable storage array ensures that data, once written, cannot be altered or deleted. This greatly reduces the risk of backup compromise and provides resilience against ransomware attacks, as the ransomware cannot modify or delete the backup data. Maintaining multiple copies of production data with an immutable storage solution ensures data integrity and compliance with the requirement for multiple copies.

Other options:

B . Utilizing two connected storage arrays and ensuring the arrays constantly sync: While this ensures data redundancy, it does not provide protection against ransomware attacks, as both arrays could be compromised simultaneously.

C . Enabling remote journaling on the databases: This ensures real-time transaction mirroring but does not address the requirement for reducing the risk of backup compromise or resilience to ransomware.

D . Setting up anti-tampering on the databases: While this helps ensure data integrity, it does not provide a comprehensive backup solution that meets all the specified requirements.

Reference:

CompTIA Security+ Study Guide

NIST SP 800-209, "Security Guidelines for Storage Infrastructure"

"Immutable Backup Architecture" by Veeam

Question: 49

[Security Architecture]

During a forensic review of a cybersecurity incident, a security engineer collected a portion of the payload used by an attacker on a comprised web server Given the following portion of the code:

```
* .aad■ . • o. . dr _ jinent» loGatrlon=Rhl ■ .-                    10 r 10 ■ 1 *3/ 7 "j^^aocomeiitr ■ cookie; . . 12. .f«
<>. . .aah214«21 ...41..2...9.3.
```

Which of the following best describes this incident?

A. XSRF attack
B. Command injection
C. Stored XSS
D. SQL injection

Answer: C

Explanation:

The provided code snippet shows a script that captures the user's cookies and sends them to a remote server. This type of attack is characteristic of Cross-Site Scripting (XSS), specifically stored XSS, where the malicious script is stored on the target server (e.g., in a database) and executed in the context of users who visit the infected web page.

A . XSRF (Cross-Site Request Forgery) attack: This involves tricking the user into performing actions on a different site without their knowledge but does not involve stealing cookies via script injection.

B . Command injection: This involves executing arbitrary commands on the host operating system, which is not relevant to the given JavaScript code.

C . Stored XSS: The provided code snippet matches the pattern of a stored XSS attack, where the script is injected into a web page, and when users visit the page, the script executes and sends theuser's cookies to the attacker's server.

D . SQL injection: This involves injecting malicious SQL queries into the database and is unrelated to the given JavaScript code.

Reference:

CompTIA Security+ Study Guide

OWASP (Open Web Application SecurityProject) guidelines on XSS

"The Web Application Hacker's Handbook" by Dafydd Stuttard and Marcus Pinto

Question: 50

[Emerging Technologies and Threats]

A security architect for a global organization with a distributed workforce recently received funding lo deploy a CASB solution Which of the following most likely explains the choice to use a proxy-based CASB?

A. The capability to block unapproved applications and services is possible
B. Privacy compliance obligations are bypassed when using a user-based deployment.
C. Protecting and regularly rotating API secret keys requires a significant time commitment
D. Corporate devices cannot receive certificates when not connected to on-premises devices

Answer: A

Explanation:

A proxy-based Cloud Access Security Broker (CASB) is chosen primarily for its ability to block unapproved applications and services. Here’s why:

Application and Service Control: Proxy-based CASBs can monitor and control the use of applications and services by inspecting traffic as it passes through the proxy. This allows the organization to enforce policies that block unapproved applications and services, ensuring compliance with security policies.

Visibility and Monitoring: By routing traffic through the proxy, the CASB can provide detailed visibility into user activities and data flows, enabling better monitoring and threat detection.

Real-Time Protection: Proxy-based CASBs can provide real-time protection against threats by analyzing and controlling traffic before it reaches the end user, thus preventing the use of risky applications and services.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-125: Guide to Security for Full Virtualization Technologies Gartner CASB Market Guide

Question: 51

[Governance, Risk, and Compliance (GRC)]

A company's security policy states that any publicly available server must be patched within 12 hours after a patch is released A recent llS zero-day vulnerability was discovered that affects all versions of the Windows Server OS:

	OS	Extern si ly available?	Refund WAF?	ns incited?
Host lj	WindowsNT 9	Yes	Yes	Yes
Host 2	Windows 200B R2	No	N A	Nu
Hast 3	Windows 2012 R2	Yes	Yes	Yes
Hast 4	Windows 2022	Yes	No	Yes
Hast 5	Window ?G1? R?	Ma	N A	Na
1 HlSt 6	Windows 2019	YeS	No	No

Which of the following hosts should a security analyst patch first once a patch is available?

A. 1
B. 2
C. 3
D. 4
E. 5
F. 6

Answer: A

Explanation:

Based on the security policy that any publicly available server must be patched within 12 hours after

a patch is released, the securityanalyst should patch Host 1 first. Here's why:

Public Availability: Host 1 is externally available, making it accessible from the internet. Publicly available servers are at higher risk of being targeted by attackers, especially when a zero-day vulnerability is known.

Exposure to Threats: Host 1 has IIS installed and is publicly accessible, increasing its exposure to potential exploitation. Patching this host first reduces the risk of a successful attack.

Prioritization of Critical Assets: According to best practices, assets that are exposed to higher risks should be prioritized for patching to mitigate potential threats promptly.

Reference:

CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-40: Guide toEnterprise Patch Management Technologies

CIS Controls: Control 3 - Continuous Vulnerability Management

Question: 52

[Security Architecture]

A security review revealed that not all of the client proxy traffic is being captured. Which of the following architectural changes best enables the capture of traffic for analysis?

A. Adding an additional proxy server to each segmented VLAN
B. Setting up a reverse proxy for client logging at the gateway

C. Configuring a span port on the perimeter firewall to ingest logs
D. Enabling client device logging and system event auditing

Answer: C

Explanation:

Configuring a span port on the perimeter firewall to ingest logs is the best architectural change to ensure that all client proxy traffic is captured for analysis. Here's why:
Comprehensive Traffic Capture: A span port (or mirror port) on the perimeter firewall can capture all inbound and outbound traffic, including traffic that might bypass the proxy. This ensures that all network traffic is available for analysis.
Centralized Logging: By capturing logs at the perimeter firewall, the organization can centralize logging and analysis, making it easier to detect and investigate anomalies.
Minimal Disruption: Implementing a span port is a non-intrusive method that does not require significant changes to the network architecture, thus minimizing disruption to existing services. Reference:
CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl
NIST Special Publication 800-92: Guide to Computer Security Log Management
OWASP Logging Cheat Sheet

Question: 53

[Security Architecture]
A company is having issues with its vulnerability management program New devices/IPs are added and dropped regularly, making the vulnerability report inconsistent Which of the following actions should the company lake to most likely improve the vulnerability management process'

A. Request a weekly report with all new assets deployed and decommissioned
B. Extend the DHCP lease lime to allow the devices to remain with the same address for a longer period.
C. Implement a shadow IT detection process to avoid rogue devices on the network
D. Perform regular discovery scanning throughout the 11 landscape using the vulnerability management tool

Answer: D

Explanation:

To improve the vulnerability management process in an environment where new devices/IPs are added and dropped regularly, the company should perform regular discovery scanning throughout the IT landscape using the vulnerability management tool. Here's why:
Accurate Asset Inventory: Regular discovery scans help maintain an up-to-date inventory of all assets, ensuring that the vulnerability management process includes all relevant devices and IPs. Consistency in Reporting: By continuously discovering and scanning new and existing assets, the company can generate consistent and comprehensive vulnerability reports that reflect the current state of the network.
Proactive Management: Regular scans enable the organization to proactively identify and address vulnerabilities on new and existing assets, reducing the window of exposure to potential threats. Reference:
CompTIA Security+ SY0-601 Study Guide by Mike Chapple and David Seidl

NIST Special Publication 800-40: Guide to Enterprise Patch Management Technologies

CIS Controls: Control 1 - Inventory and Control ofHardware Assets

Question: 54

[Security Architecture]

A security analyst Detected unusual network traffic related to program updating processes The analyst collected artifacts from compromised user workstations. The discovered artifacts were binary files with the same name as existing, valid binaries but. with different hashes which of the following solutions would most likely prevent this situation from reoccurring?

A. Improving patching processes
B. Implementing digital signature
C. Performing manual updates via USB ports
D. Allowing only dies from internal sources

Answer: B

Explanation:

Implementing digital signatures ensures the integrity and authenticity of software binaries. When a binary is digitally signed, any tampering with the file (e.g., replacing it with amalicious version) would invalidate the signature. This allows systems to verify the origin and integrity of binaries before execution, preventing the execution of unauthorized or compromised binaries.

A . Improving patching processes: While important, this does not directly address the issue of verifying the integrity of binaries.

B . Implementing digital signatures: This ensures that only valid, untampered binaries are executed, preventing attackers from substituting legitimate binaries with malicious ones.

C . Performing manual updates via USB ports: This is not practical and does not scale well, especially in large environments.

D . Allowing only files from internal sources: This reduces the risk but does not provide a mechanism to verify the integrity of binaries.

Reference:

CompTIA Security+ Study Guide

NIST SP 800-57, "Recommendation for Key Management"

OWASP (Open Web Application Security Project) guidelines on code signing

Question: 55

[Security Architecture]

A company isolated its OT systems from other areas of the corporate network These systems are required to report usage information over the internet to the vendor Which oi the following b*st reduces the risk of compromise or sabotage' (Select two).

A. Implementing allow lists
B. Monitoring network behavior
C. Encrypting data at rest

D. Performing boot Integrity checks
E. Executing daily health checks
F. Implementing a site-to-site IPSec VPN

Answer: A,F

Explanation:

A . Implementing allow lists: Allow lists (whitelisting) restrict network communication to only authorized devices and applications, significantly reducing the attack surface by ensuring that only pre-approved traffic is permitted.
F . Implementing a site-to-site IPSec VPN: A site-to-site VPN provides a secure, encrypted tunnel for data transmission between the OT systems and the vendor, protecting the data from interception and tampering during transit.
Other options:
B . Monitoring network behavior: While useful for detecting anomalies, it does not proactively reduce the risk of compromise or sabotage.
C . Encrypting data at rest: Important for protecting data stored on devices, but does not address network communication risks.
D . Performing boot integrity checks: Ensures the integrity of the system at startup but does not protect ongoing network communications.
E . Executing daily health checks: Useful for maintaining system health but does not directly reduce the risk of network-based compromise or sabotage.
Reference:
CompTIA Security+ Study Guide
NIST SP 800-82, "Guide to Industrial Control Systems (ICS) Security"
"Industrial Network Security" by Eric D. Knapp and Joel Thomas Langill

Question: 56

[Emerging Technologies and Threats]
A security engineer wants to reduce the attack surface of a public-facing containerized application Which of the following will best reduce the application's privilege escalation attack surface?

A. Implementing the following commands in the Dockerfile:RUN echo user:x:1000:1000iuser:/home/user:/dew/null > /ete/passwd
B. Installing an EDR on the container's host with reporting configured to log to a centralized SIFM and Implementing the followingalerting rules TF PBOCESS_USEB=rooC ALERT_TYPE=critical
C. Designing a muiticontainer solution, with one set of containers that runs the mam application, and another set oi containers that perform automatic remediation by replacing compromised containers or disabling compromised accounts
D. Running the container in an isolated network and placing a load balancer in a public-facing network. Adding the following ACL to the load balancer:PZRKZI HTTES from 0-0.0.0.0/0 pert 443

Answer: A

Explanation:

Implementing the given commands in the Dockerfile ensures that the container runs with non-root user privileges. Running applications as a non-root user reduces the risk of privilege escalation attacks because even if anattacker compromises the application, they would have limited privileges and would not be able to perform actions that require root access.

A . Implementing the following commands in the Dockerfile: This directly addresses the privilege escalation attack surface by ensuring the application does not run with elevated privileges.

B . Installing an EDR on the container's host: While useful for detecting threats, this does not reduce the privilege escalation attack surface within the containerized application.

C .Designing a multi-container solution: While beneficial for modularity and remediation, it does not specifically address privilege escalation.

D . Running the container in an isolated network: This improves network security but does not directly reduce the privilege escalation attack surface.

Reference:

CompTIA Security+ Study Guide

Docker documentation on security best practices

NIST SP 800-190, "Application Container Security Guide"

Question: 57

[Governance, Risk, and Compliance (GRC)]

A compliance officer is reviewing the data sovereignty laws in several countries where the organization has no presence Which of the following is the most likely reason for reviewing these laws?

A. The organization is performing due diligence of potential tax issues.
B. The organization has been subject to legal proceedings in countries where it has a presence.
C. The organization is concerned with new regulatory enforcement in other countries
D. The organization has suffered brand reputation damage from incorrect media coverage

Answer: C

Explanation:

Reviewing data sovereignty laws in countries where the organization has no presence is likely due to concerns about regulatory enforcement. Data sovereignty laws dictate how data can be stored, processed, and transferred across borders. Understanding these laws is crucial for compliance, especially if the organization handles data that may be subject to foreign regulations.

A . The organization is performing due diligence of potential tax issues: This is less likely as tax issues are generally not directly related to data sovereignty laws.

B . The organization has been subject to legal proceedings in countries where it has a presence: While possible, this does not explain the focus on countries where the organization has no presence. C . The organization is concerned with new regulatory enforcement in other countries: This is the most likely reason. New regulations could impact the organization’s operations, especially if they involve data transfers or processing data from these countries.

D . The organization has suffered brand reputation damage from incorrect media coverage: This is less relevant to the need for reviewing data sovereignty laws.

Reference:

CompTIA Security+ Study Guide

GDPR and other global data protection regulations

"Data Sovereignty: TheFuture of Data Protection?" by Mark Burdon

Question: 58

[Security Operations]

A security analyst wants to use lessons learned from a poor incident response to reduce dwell lime in the future The analyst is using the following data points

User	Sirs visired	HTTP rec r /. z z	filter srstus	Tzatrlc sr ar ns	filer t axExua
acccur-t 1	x x x 1 •-z xa	SET	Al 1 = WE i	Juli x wad	33
a. dm. in _	has king. c can	GEL	Al-owsd	Allowed	¥w
H ;J \- v u r ■ '•	>'ayx -< 1. vexn	GET	Al Lowed	AlizWed	ND
meaner 2	p^t y r 0. i . oom	SET	Blockaa	H . o - koa	No
ac-zouxitJ	p-iy rd i . c zu	scar	ELocksi	Blocked	Mp
axxxwxxl	135.40.25.21	KM .	All ores i	All zwec.	Ko
a ex xun x- 5	payroll> erm	Gil	JiL 1 owe d	Allzwed	Na

Which of the following would the analyst most likely recommend?

A. Adjusting the SIEM to alert on attempts to visit phishing sites B. Allowing TRACE method traffic to enable better log correlation C. Enabling alerting on all suspicious administrator behavior

D. utilizing allow lists on the WAF for all users using GFT methods

Answer: C

Explanation:

In the context of improving incident response and reducing dwell time, the security analyst needs to focus on proactive measures that can quickly detect and alert on potential security breaches. Here's a detailed analysis of the options provided:

A . Adjusting the SIEM to alert on attempts to visit phishing sites: While this is a useful measure to prevent phishing attacks, it primarily addresses external threats and doesn't directly impact dwell time reduction, which focuses on the time a threat remains undetected within a network.

B . Allowing TRACE method traffic to enable better log correlation: The TRACE method in HTTP is used for debugging purposes, but enabling it can introduce security vulnerabilities. It's not typically recommended for enhancing security monitoring or incident response.

C . Enabling alerting on all suspicious administrator behavior: This option directly targets the potential misuse of administrator accounts, which are often high-value targets for attackers. By monitoring and alerting on suspicious activities from admin accounts, the organization can quickly identify and respond to potential breaches, thereby reducing dwell time significantly. Suspicious behavior could include unusual login times, access to sensitive data not usually accessed by the admin, or any deviation from normal behavior patterns. This proactive monitoring is crucial for quick detection and response, aligning well with best practices in incident response.

D . Utilizing allow lists on the WAF for all users using GET methods: This measure is aimed at restricting access based on allowed lists, which can be effective in preventing unauthorized access but doesn't specifically address the need for quick detection and response to internal threats.

Reference:

CompTIA SecurityX Study Guide: Emphasizes the importance of monitoring and alerting on admin activities as part of a robust incident response plan.

NIST Special Publication 800-61 Revision 2,"Computer Security Incident Handling Guide": Highlights best practices for incident response, including the importance of detecting and responding to suspicious activities quickly.

"Incident Response & Computer Forensics" by Jason T. Luttgens, Matthew Pepe, and Kevin Mandia:

Discusses techniques for reducing dwell time through effective monitoring and alerting mechanisms, particularly focusing on privileged account activities.

By focusing on enabling alerting for suspicious administrator behavior, the security analyst addresses a critical area that can help reduce the time a threat goes undetected, thereby improving the overall security posture of the organization.

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Question: 59

[Security Architecture]

A security analyst received anotification from a cloud service provider regarding an attack detected on a web server The cloud service provider shared the following information about the attack:

- The attack came from inside the network.
- The attacking source IP was from the internal vulnerability scanners.
- The scanner is not configured to target the cloud servers.

Which of the following actions should the security analyst take first?

A. Create an allow list for the vulnerability scanner IPs m order to avoid false positives
B. Configure the scan policy to avoid targeting an out-of-scope host
C. Set network behavior analysis rules
D. Quarantine the scanner sensor to perform a forensic analysis

Answer: D

Explanation:

When a security analyst receives a notification about an attack that appears to originate from an internal vulnerability scanner, it suggests that the scanner itself might have been compromised. This situation is critical because a compromised scanner can potentially conduct unauthorized scans, leak sensitive information, or execute malicious actions within the network. The appropriate first action involves containing the threat to prevent further damage and allow for a thorough investigation. Here's why quarantining the scanner sensor is the best immediate action: Containment and Isolation: Quarantining the scanner will immediately prevent it from continuing any malicious activity or scans. This containment is crucial to protect the rest of the network from potential harm.

Forensic Analysis: By isolating the scanner, a forensic analysis can be performed to understand how it was compromised, what actions it took, and what data or systems might have been affected. This analysis will provide valuable insights into the nature of the attack and help in taking appropriate remedial actions.

Preventing Further Attacks: If the scanner is allowed to continue operating, it might execute more unauthorized actions, leading to greater damage. Quarantine ensures that the threat is neutralized promptly.

Root Cause Identification: A forensic analysis can help identify vulnerabilities in the scanner's configuration, software, or underlying system that allowed the compromise. This information is essential for preventing future incidents.

Other options, while potentially useful in the long term, are not appropriate as immediate actions in this scenario:

A . Create an allow list for the vulnerability scanner IPs to avoid false positives: This action addresses false positives but does not mitigate the immediate threat posed by the compromised scanner.

B . Configure the scan policy to avoid targeting an out-of-scope host: This step is preventive for future scans but does not deal with the current incident where the scanner is already compromised.

C . Set network behavior analysis rules: While useful for ongoing monitoring and detection, this does not address the

immediate need to stop the compromised scanner's activities.
In conclusion, the first and most crucial action is to quarantine the scanner sensor to halt any malicious activity and perform a forensic analysis to understand the scope and nature of the compromise. This step ensures that the threat is contained and provides a basis for further remediation efforts.
Reference:
CompTIA SecurityX Study Guide
NIST Special Publication 800-61Revision 2, "Computer Security Incident Handling Guide"

Question: 60

[Security Architecture]
A company's SICM Is continuously reporting false positives and false negatives The security operations team has Implemented configuration changes to troubleshoot possible reporting errors Which of the following sources of information best supports the required analysts process? (Select two).

A. Third-party reports and logs
B. Trends
C. Dashboards
D. Alert failures
E. Network traffic summaries
F. Manual review processes

Answer: A,B

Explanation:

When dealing with false positives and false negatives reported by a Security Information and Event Management (SIEM) system, the goal is to enhance the accuracy of the alerts and ensure that actual threats are identified correctly. The following sources of information best support the analysis process:
A . Third-party reports and logs: Utilizing external sources of information such as threat intelligence reports, vendor logs, and other third-party data can provide a broader perspective on potential threats. These sources often contain valuable insights and context that can help correlate events more accurately, reducing the likelihood of false positives and false negatives.
B . Trends: Analyzing trends over time can help inunderstanding patterns and anomalies in the data. By observing trends, the security team can distinguish between normal and abnormal behavior, which aids in fine-tuning the SIEM configurations to better detect true positives and reduce false alerts.
Other options such as dashboards, alert failures, network traffic summaries, and manual review processes are also useful but are more operational rather than foundational for understanding the root causes of reporting errors in SIEM configurations.
Reference:
CompTIA SecurityX Study Guide: Emphasizes the importance of leveraging external threat intelligence and historical trends for accurate threat detection.
NIST Special Publication 800-92, "Guide to Computer Security Log Management": Highlights best practices for log management, including the use of third-party sources and trend analysis to improve incident detection.
"Security Information and Event Management (SIEM) Implementation" by David Miller: Discusses the use of external intelligence and trends to enhance SIEM accuracy.

Question: 61

[Emerging Technologies and Threats]

A security analyst needs to ensure email domains that send phishing attempts without previous communications are not delivered to mailboxes The following email headers are being reviewed

Date	Sending domain	Reply-to domain	Subjecl
ApH 16	sales. Corn	saies-maii cum	Updated SccJulv Questions
April 13	vendor .com	vendor.com	New Soles "uubg
Apr. I 1B	partner com	partner com	B2B Sales ancrca.se
April 19	hr zaas com	hr saas com	Employee payroll Update Requ^St
April 19	vendor mm	vendor com	Password Rent ii re merits Not Mel

Which of thefollowing is the best action for the security analyst to take?

A. Block messages from hr-saas.com because it is not a recognized domain.
B. Reroute all messages with unusual security warning notices to the IT administrator
C. Quarantine all messages with sales-mail.com in the email header
D. Block vendor com for repeated attempts to send suspicious messages

Answer: D

Explanation:

In reviewing email headers and determining actions to mitigate phishing attempts, the security analyst should focus on patterns of suspicious behavior and the reputation of the sending domains. Here's the analysis of the options provided:

A . Block messages from hr-saas.com because it is not a recognized domain: Blocking a domain solely because it is not recognized can lead to legitimate emails being missed. Recognition alone should not be the criterion for blocking.

B . Reroute all messages with unusual security warning notices to the IT administrator: While rerouting suspicious messages can be a good practice, it is not specific to the domain sending repeated suspicious messages.

C . Quarantine all messages with sales-mail.com in the email header: Quarantining messages based on the presence of a specific domain in the email header can be too broad and may capture legitimate emails.

D . Block vendor com for repeated attempts to send suspicious messages: This option is the most appropriate because it targets a domain that has shown a pattern of sending suspicious messages. Blocking a domain that repeatedly sends phishing attempts without previous communications helps in preventing future attempts from the same source and aligns with the goal of mitigating phishing risks.

Reference:

CompTIA SecurityX Study Guide: Details best practices for handling phishing attempts, including blocking domains with repeated suspicious activity.

NIST Special Publication 800-45 Version 2, "Guidelines on Electronic Mail Security": Provides guidelines on email security, including the management of suspicious email domains.

"Phishing and Countermeasures: Understanding the Increasing Problem of Electronic Identity Theft" by Markus Jakobsson and Steven Myers: Discusses effective measures to counter phishing attempts, including blocking persistent offenders.

By blocking the domain that has consistently attempted to send suspicious messages, the security analyst can effectively reduce the risk of phishing attacks.

Question: 62

[Security Engineering and Cryptography]
A company recently experienced an incident in which an advanced threat actor was able to shim malicious code against the hardware static of a domain controller The forensic team cryptographically validated that com the underlying firmware of the box and the operating system had not been compromised. However, the attacker was able to exfiltrate information from the server using a steganographic technique within LOAP Which of the following is me b»« way to reduce the risk oi reoccurrence?

A. Enforcing allow lists for authorized network pons and protocols
B. Measuring and attesting to the entire boot chum
C. Rolling the cryptographic keys used for hardware security modules
D. Using code signing to verify the source of OS updates

Answer: A

Explanation:

The scenario describes a sophisticated attack where the threat actor used steganography within LDAP to exfiltrate data. Given that thehardware and OS firmware were validated and found uncompromised, the attack vector likely exploited a network communication channel. To mitigate such risks, enforcing allow lists for authorized network ports and protocols is the most effective strategy.
Here's why this option is optimal:
Port and Protocol Restrictions: By creating an allow list, the organization can restrict communications to only those ports and protocols that are necessary for legitimate business operations. This reduces the attack surface by preventing unauthorized or unusual traffic.
Network Segmentation: Enforcing such rules helps in segmenting the network and ensuring that only approved communications occur, which is critical in preventing data exfiltration methods like steganography.
Preventing Unauthorized Access: Allow lists ensure that only predefined, trusted connections are allowed, blocking potential paths that attackers could use to infiltrate or exfiltrate data.
Other options, while beneficial in different contexts, are not directly addressing the network communication threat:
B . Measuring and attesting to the entire boot chain: While this improves system integrity, it doesn't directly mitigate the risk of data exfiltration through network channels.
C . Rolling thecryptographic keys used for hardware security modules: This is useful for securing data and communications but doesn't directly address the specific method of exfiltration described.
D . Using code signing to verify the source of OS updates: Ensures updates are from legitimate sources, but it doesn't mitigate the risk of network-based data exfiltration.
Reference:
CompTIA SecurityX Study Guide
NIST Special Publication 800-41, "Guidelines on Firewalls and Firewall Policy"
CIS Controls Version 8, Control 9: Limitation and Control of Network Ports, Protocols, and Services

Question: 63

[Security Architecture]
A company receives reports about misconfigurations and vulnerabilities in a third-party hardware device that is part of its released products. Which of the following solutions is the best way for the company to identify possible issues at an

earlier stage?

A. Performing vulnerability tests on each device delivered by the providers
B. Performing regular red-team exercises on the vendor production line
C. Implementing a monitoring process for the integration between the application and the vendor appliance
D. Implementing a proper supply chain risk management program

Answer: D

Explanation:

Addressing misconfigurations and vulnerabilities in third-party hardware requires a comprehensive approach to manage risks throughout the supply chain. Implementing a proper supply chain risk management (SCRM) program is the most effective solution as it encompasses the following: Holistic Approach: SCRM considers the entire lifecycle ofthe product, from initial design through to delivery and deployment. This ensures that risks are identified and managed at every stage. Vendor Management: It includes thorough vetting of suppliers and ongoing assessments of their security practices, which can identify and mitigate vulnerabilities early.

Regular Audits and Assessments: A robust SCRM program involves regular audits and assessments, both internally and with suppliers, to ensure compliance with security standards and best practices. Collaboration and Communication: Ensures that there is effective communication and collaboration between the company and its suppliers, leading to faster identification and resolution of issues.

Other options, while beneficial, do not provide the same comprehensive risk management:

A . Performing vulnerability tests on each device delivered by the providers: While useful, this is reactive and only addresses issues after they have been delivered.

B . Performing regular red-team exercises on the vendor production line: This can identify vulnerabilities but is not as comprehensive as a full SCRM program.

C . Implementing a monitoring process for the integration between the application and the vendor appliance: This is important but only covers the integration phase, not the entire supply chain.

Reference:

CompTIA SecurityX Study Guide

NIST Special Publication 800-161, "Supply Chain Risk Management Practices for Federal Information Systems and Organizations"

ISO/IEC 27036-1:2014, "Information technology — Security techniques — Information security for supplier relationships"

Question: 64

[Emerging Technologies and Threats]

Which of the following best explains the business requirement a healthcare provider fulfills by encrypting patient data at rest?

A. Securing data transfer between hospitals
B. Providing for non-repudiation data
C. Reducing liability from identity theft
D. Protecting privacy while supporting portability.

Answer: D

Explanation:

Encrypting patient data at rest is a critical requirement for healthcare providers to ensure compliance with regulations such as the Health Insurance Portability and Accountability Act (HIPAA). The primary business requirement fulfilled by this practice is the protection of patient privacy while supporting the portability of medical information. By encrypting data at rest, healthcare providers safeguard sensitive patient information from unauthorized access, ensuring that privacy is maintained even if the storage media are compromised. Additionally, encryption supports the portability of patient records, allowing for secure transfer and access across different systems and locations while ensuring that privacy controls are in place.

Reference:

CompTIA SecurityX Study Guide: Emphasizes the importance of data encryption for protecting sensitive information and ensuring compliance with regulatory requirements.

HIPAA Security Rule: Requires healthcare providers to implement safeguards, including encryption, to protect patient data.

"Health Informatics: Practical Guide for Healthcare and Information TechnologyProfessionals" by Robert E. Hoyt: Discusses encryption as a key measure for protecting patient data privacy and supporting data portability.

Question: 65

[Emerging Technologies and Threats]

A user submits a help desk ticket stating then account does not authenticatesometimes. An analyst reviews the following logs for the user:

Which of the following best explains the reason the user's access is being denied?

A. incorrectly typed password
B. Time-based access restrictions
C. Account compromise
D. Invalid user-to-device bindings

Answer: B

Explanation:

The logs reviewed for the user indicate that access is being denied due to time-based access restrictions. These restrictions are commonly implemented to limit access to systems during specific hours to enhance security. If a user attempts to authenticate outside of the allowed time window, access will be denied. This measure helps prevent unauthorized access during non-business hours, reducing the risk of security incidents.

Reference:

CompTIA SecurityX Study Guide: Covers various access control methods, including time-based restrictions, as a means of enhancing security.

NIST Special Publication 800-53, "Security and Privacy Controls for Information Systems and Organizations": Recommends the use of time-based access restrictions as part of access control policies.

"Access Control and Identity Management" by Mike Chapple and Aaron French: Discusses the implementation and benefits of time-based access restrictions.

Question: 66

[Governance, Risk, and Compliance (GRC)]

A systems administrator works with engineers to process and address vulnerabilities as a result of continuous scanning activities. The primary challenge faced by the administrator is differentiating between valid and invalid findings. Which of the following would the systems administrator most likely verify is properly configured?

A. Report retention time
B. Scanning credentials
C. Exploit definitions
D. Testing cadence

Answer: B

Explanation:

When differentiating between valid and invalid findings from vulnerability scans, the systemsadministrator should verify that the scanning credentials are properly configured. Valid

credentials ensure that the scanner can authenticate and access the systems being evaluated, providing accurate and comprehensive results. Without proper credentials, scans may miss vulnerabilities or generate false positives, making it difficult to prioritize and address the findings effectively.

Reference:

CompTIA SecurityX Study Guide: Highlights the importance of using valid credentials for accurate vulnerability scanning.

"Vulnerability Management" by Park Foreman: Discusses the role of scanning credentials in obtaining accurate scan results and minimizing false positives.

"The Art of Network Security Monitoring" by Richard Bejtlich: Covers best practices for configuring and using vulnerability scanning tools, including the need for valid credentials.

Question: 67

[Emerging Technologies and Threats]

A company that relies on an COL system must keep it operating until a new solution is available Which of the following is the most secure way to meet this goal?

A. Isolating the system and enforcing firewall rules to allow access to only required endpoints
B. Enforcing strong credentials and improving monitoring capabilities
C. Restricting system access to perform necessary maintenance by the IT team
D. Placing the system in a screened subnet and blocking access from internal resources

Answer: A

Explanation:

To ensure the most secure way of keeping a legacy system (COL) operating until a new solution is available, isolating the

system and enforcing strict firewall rules is the best approach. This method minimizes the attack surface by restricting access to only the necessary endpoints, thereby reducing the risk of unauthorized access and potential security breaches. Isolating the system ensures that it is not exposed to the broader network, while firewall rules control the traffic that can reach the system, providing a secure environment until a replacement is implemented.

Reference:

CompTIA SecurityX Study Guide: Recommends network isolation and firewall rules as effective measures for securing legacy systems.

NIST Special Publication 800-82, "Guide to Industrial Control Systems (ICS) Security": Advises on isolating critical systems and using firewalls to control access.

"Network Security Assessment" by Chris McNab: Discusses techniques for isolating systems and enforcing firewall rules to protect vulnerable or legacy systems.

By isolating the system and implementing strict firewall controls, the organization can maintain the necessary operations securely while working on deploying a new solution.

Question: 68

[Security Architecture]

A user reports application access issues to the help desk. The help desk reviews the logs for the user

lime	Internal IP	Puhi in IP	IP oeolocation	Appheatton	Action
8.4 fpm	192 168 1 5	104 W 16 29	ICiDdlO	VPN	AHOW
8.-13 p.m	10.10.2 21	95 67 137 12	Les Angeles	Entail	AH™
8 43 p n[1]	10.10.2 21	95 67 137 12	Las Angeles	Human resources system	Alow
3-19 p IT	10 10 2 21	95 67 137 12	Las Anneles	Snail	Allow
fl ft? p IT.	192 168 1 ft	104 16 16 29	Tnmnlf:	Human resources svstem	Deray

Which of the following is most likely The reason for the issue?

A. The userinadvertently tripped the impossible travel security rule in the SSO system.
B. A threat actor has compromised the user's account and attempted to lop, m
C. The user is not allowed to access the human resources system outside of business hours
D. The user did not attempt to connect from an approved subnet

Answer: A

Explanation:

Based on the provided logs, the user has accessed various applications from different geographic locations within a very short timeframe. This pattern is indicative of the "impossible travel" security rule, a common feature in Single Sign-On (SSO) systems designed to detect and prevent fraudulent access attempts.

Analysis of Logs:

At 8:47 p.m., the user accessed a VPN from Toronto.

At 8:48 p.m., the user accessed email from Los Angeles.

At 8:48 p.m., the user accessed the human resources system from Los Angeles.

At 8:49 p.m., the user accessed email again from Los Angeles.

At 8:52 p.m., the user attempted to access the human resources system from Toronto, which was denied.
These rapid changes in location are physically impossible and typically trigger security measures to prevent unauthorized access. The SSO system detected these inconsistencies and likely flagged the activity as suspicious, resulting in access denial.
Reference:
CompTIA SecurityX Study Guide
NIST Special Publication 800-63B, "Digital Identity Guidelines"
"Impossible Travel Detection," Microsoft Documentation

Question: 69

[Emerging Technologies and Threats]
An organization wants to manage specialized endpoints and needs a solution that provides the ability to
* Centrally manage configurations
- Push policies.
- Remotely wipe devices
- Maintain asset inventory

Which of the following should the organization do to best meet these requirements?

A. Use a configuration management database
B. Implement a mobile device management solution.
C. Configure contextual policy management
D. Deploy a software asset manager

Answer: B

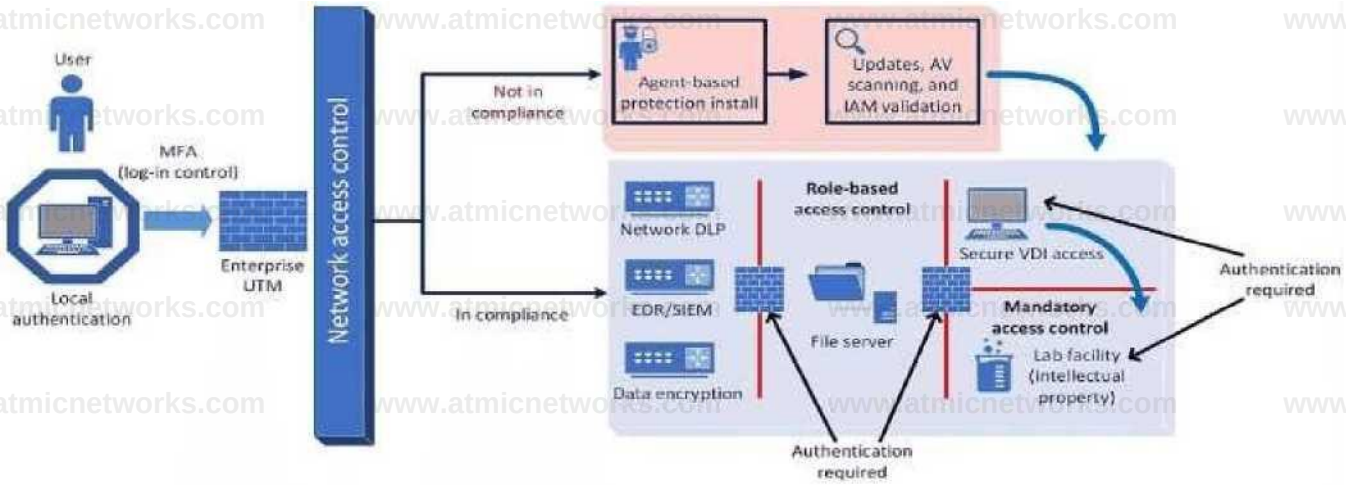
Explanation:

To meet the requirements of centrally managing configurations, pushing policies, remotely wiping devices, and maintaining an asset inventory, the best solution is to implement a Mobile Device Management (MDM) solution.
MDM Capabilities:
Central Management: MDM allows administrators to manage the configurations of all devices from a central console.
Policy Enforcement: MDM solutions enable the push of security policies and updates to ensure compliance across all managed devices.
Remote Wipe: In case a device is lost or stolen, MDM provides the capability to remotely wipe the device to protect sensitive data.
Asset Inventory: MDM maintains an up-to-date inventory of all managed devices, including their configurations and installed applications.
Other options do not provide the same comprehensive capabilities required for managing specialized endpoints.
Reference:
CompTIA SecurityX Study Guide
NIST Special Publication 800-124 Revision 1, "Guidelines for Managing the Security of Mobile Devices in the Enterprise"
"Mobile Device Management Overview," Gartner Research

Question: 70

[Security Architecture]

A company plans to implement a research facility with Intellectual property data that should be protected The following is the security diagram proposed by the security architect



Which of the following security architect models is illustrated by the diagram?

A. Identity and access management model
B. Agent based security model
C. Perimeter protection security model
D. Zero Trust security model

Answer: D

Explanation:

The security diagram proposed by the security architect depicts a Zero Trust security model. Zero Trust is asecurity framework that assumes all entities, both inside and outside the network, cannot be trusted and must be verified before gaining access to resources.

Key Characteristics of Zero Trust in the Diagram:

Role-based Access Control: Ensures that users have access only to the resources necessary for their role.

Mandatory Access Control: Additional layer of security requiring authentication for access to sensitive areas.

Network Access Control: Ensures that devices meet security standards before accessing the network. Multi-factor Authentication (MFA): Enhances security by requiring multiple forms of verification. This model aligns with the Zero Trust principles of never trusting and always verifying access requests, regardless of their origin.

Reference:

CompTIA SecurityX Study Guide

NIST Special Publication 800-207, "Zero Trust Architecture"

"Implementing a Zero Trust Architecture," Forrester Research

Question: 71

[Security Architecture]

A financial services organization is using Al lo fully automate the process of deciding client loan rates

Which of the following should the organization be most concerned about from a privacy perspective?

A. Model explainability
B. Credential Theft
C. Possible prompt Injections
D. Exposure to social engineering

Answer: A

Explanation:

When using AI to fully automate the process of deciding client loan rates, the primary concern from a privacy perspective is model explainability.

Why Model Explainability is Critical:

Transparency: It ensures that the decision-making process of the AI model can be understood and explained to stakeholders, including clients.

Accountability: Helps in identifying biases and errors in the model, ensuring that the AI is making fair and unbiased decisions.

Regulatory Compliance: Various regulations require that decisions, especially those affecting individuals' financial status, can be explained and justified.

Trust: Builds trust among users and stakeholders by demonstrating that the AI decisions are transparent and justifiable.

Other options, such ascredential theft, prompt injections, and social engineering, are significant concerns but do not directly address the privacy and fairness implications of automated decisionmaking.

Reference:

CompTIA SecurityX Study Guide

"The Importance ofExplainability in AI," IEEE Xplore

GDPR Article 22, "Automated Individual Decision-Making, Including Profiling"

Question: 72

[Security Architecture]

A company wants to use loT devices to manage and monitor thermostats at all facilities The thermostats must receive vendor security updates and limit access to other devices within the organization Which of the following best addresses the company's requirements''

A. Only allowing Internet access to a set of specific domains
B. Operating lot devices on a separate network with no access to other devices internally
C. Only allowing operation for loT devices during a specified time window
D. Configuring IoT devices to always allow automatic updates

Answer: B

Explanation:

The best approach for managing and monitoring IoT devices, such as thermostats, is to operate them on a separate network with no access to other internal devices. This segmentation ensures that the IoT devices are isolated from the main network, reducing the risk of potential security breaches affecting other critical systems. Additionally, this setup allows for secure vendor updates without exposing the broader network to potential vulnerabilities inherent in IoT devices.

Reference:

CompTIA SecurityX Study Guide: Recommends network segmentation for IoT devices to minimize security risks.

NIST Special Publication 800-183, "Network of Things": Advises on the isolation of IoT devices to enhance security.

"Practical IoT Security" by Brian Russell and Drew Van Duren: Discusses best practices for securing IoT devices, including

network segmentation.

Question: 73

[Emerging Technologies and Threats]
An engineering team determines the cost to mitigate certain risks is higher than the asset values The team must ensure the risks are prioritized appropriately. Which of the following is the best way to address the issue?

A. Data labeling
B. Branch protection
C. Vulnerability assessments
D. Purchasing insurance

Answer: D

Explanation:

When the cost to mitigate certain risks is higher than the asset values, the best approach is to purchase insurance. Thismethod allows the company to transfer the risk to an insurance provider, ensuring that financial losses are covered in the event of an incident. This approach is cost-effective and ensures that risks are prioritized appropriately without overspending on mitigation efforts. Reference:
CompTIA SecurityX Study Guide: Discusses risk management strategies, including risk transfer through insurance.
NIST Risk Management Framework (RMF): Highlights the use of insurance as a risk mitigation strategy.
"Information Security Risk Assessment Toolkit" by Mark Talabis and Jason Martin: Covers risk management practices, including the benefits of purchasing insurance.

Question: 74

[Governance, Risk, and Compliance (GRC)]
Company A acquired Company B and needs to determine how the acquisition will impact the attack surface of the organization as a whole. Which of the following is the best way to achieve this goal? (Select two).

Implementing DLP controls preventing sensitive data from leaving Company B's network

A. Documenting third-party connections used by Company B
B. Reviewing the privacy policies currently adopted by Company B
C. Requiring data sensitivity labeling tor all files shared with Company B
D. Forcing a password reset requiring more stringent passwords for users on Company B's network
E. Performing an architectural review of Company B's network

Answer: A,B

Explanation:

To determine how the acquisition of Company B will impact the attack surface, the following steps are crucial:
A . Documenting third-party connections used by Company B: Understanding all external connections is essential for

assessing potential entry points for attackers and ensuring that these connections are secure.

E . Performing an architectural review of Company B's network: This review will identify vulnerabilities and assess the security posture of the acquired company's network, providing a comprehensive understanding of the new attack surface.

These actions will provide a clear picture of the security implications of the acquisition and help in developing a plan to mitigate any identified risks.

Reference:

CompTIA SecurityX Study Guide: Emphasizes the importance of understanding third-party connections and conducting architectural reviews during acquisitions.

NIST Special Publication 800-37, "Guide for Applying the RiskManagement Framework to Federal Information Systems": Recommends comprehensive reviews and documentation of third-party connections.

"Mergers, Acquisitions, and Other Restructuring Activities" by Donald DePamphilis: Discusses the importance ofsecurity assessments during acquisitions.

Question: 75

[Security Architecture]

Asecuntv administrator is performing a gap assessment against a specific OS benchmark The benchmark requires the following configurations be applied to endpomts:

- Full disk encryption
- Host-based firewall
- Time synchronization
- Password policies
- Application allow listing
- Zero Trust application access

Which of the following solutions best addresses the requirements? (Select two).

A. CASB
B. SBoM
C. SCAP
D. SASE
E. HIDS

Answer: C,D

Explanation:

To address the specific OS benchmark configurations, the following solutions are most appropriate: C . SCAP (Security Content Automation Protocol): SCAP helps in automating vulnerability management and policy compliance, including configurations like full disk encryption, host-based firewalls, and password policies.

D . SASE (Secure Access Service Edge): SASE provides a framework for Zero Trust network access and application allow listing, ensuring secure and compliant access to applications and data.

These solutions together cover the comprehensive security requirements specified in the OS benchmark, ensuring a robust security posture for endpoints.

Reference:

CompTIA SecurityX Study Guide: Discusses SCAP and SASE as part of security configuration management and Zero

Trust architectures.

NIST Special Publication 800-126, "The Technical Specification for the Security Content Automation Protocol (SCAP)": Details SCAP's role in security automation.

"Zero Trust Networks: Building Secure Systems in Untrusted Networks" by Evan Gilman and Doug Barth: Covers the principles of Zero Trust and how SASE can implement them.

By implementing SCAP and SASE, the organization ensures that all the specified security configurations are applied and maintainedeffectively.

Question: 76

[Security Operations]

After an incident response exercise, a security administrator reviews the following table:

Service	■fiʳh ra^nq	Cntioehty rating	Alert severity
Puolic webs^e	Medium	LOw	LOW
Email	High	High	High
Human resources syste n la	High.	Medium	F/I odium
Ph one system	High	Critical	Critic a:
loirs npt	Low	1 nw	i nw

Which of the following should the administrator do to beat support rapid incident response in the future?

A. Automate alerting to IT support for phone system outages.
B. Enable dashboards for service status monitoring
C. Send emails for failed log-In attempts on the public website
D. Configure automated Isolation of human resources systems

Answer: B

Explanation:

Enabling dashboards for service status monitoring is the best action to support rapid incident response. The table shows various services with different risk, criticality, and alert severity ratings. To ensure timely and effective incident response, real-time visibility into the status of these services is crucial.

Why Dashboards for Service Status Monitoring?

Real-time Visibility: Dashboards provide an at-a-glance view of the current status of all critical services, enabling rapid detection of issues.

CentralizedMonitoring: A single platform to monitor the status of multiple services helps streamline incident response efforts.

Proactive Alerting: Dashboards can be configured to show alerts and anomalies immediately, ensuring that incidents are addressed as soon as they arise.

Improved Decision Making: Real-time data helps incident response teams make informed decisions quickly, reducing downtime and mitigating impact.

Other options, while useful, do not offer the same level of comprehensive, real-time visibility and proactive alerting:

A . Automate alerting to IT support for phone system outages: This addresses one service but does not provide a holistic view.

C . Send emails for failed log-in attempts on the public website: This is a specific alert for one type of issue and does not cover all services.

D . Configure automated isolation of human resources systems: This is a reactive measure for a specific service and does not provide real-time status monitoring.

Reference:

CompTIA SecurityX Study Guide

NIST Special Publication 800-61 Revision 2, "Computer Security Incident Handling Guide"

"Best Practices for Implementing Dashboards," Gartner Research

Question: 77

[Governance, Risk, and Compliance (GRC)]

Company A and Company D ate merging Company A's compliance reports indicate branchprotections are not in place A security analyst needs to ensure that potential threats to the software development life cycle are addressed. Which of the following should me analyst cons<der when completing this basic?

A. If developers are unable to promote to production
B. If DAST code is being stored to a single code repository
C. If DAST scans are routinely scheduled
D. If role-based training is deployed

Answer: C

Explanation:

Dynamic Application Security Testing (DAST) is crucial for identifying and addressing security vulnerabilities during the software development life cycle (SDLC). Ensuring that DAST scans are routinely scheduled helps in maintaining a secure development process.

Why Routine DAST Scans?

Continuous Security Assessment: Regular DAST scans help in identifying vulnerabilities in real-time, ensuring they are addressed promptly.

Compliance: Routine scans ensure that the development process complies with security standards and regulations.

Proactive Threat Mitigation: Regular scans help in early detection and mitigation of potential security threats, reducing the risk of breaches.

Integration into SDLC: Ensures security is embedded within the development process, promoting a security-first approach.

Other options, while relevant, do not directly address the continuous assessment and proactive identification of threats:

A . If developers are unable to promote to production: This is more of an operational issue than a security assessment.

B . If DAST code is being stored to a single code repository: This concerns code management rather than security testing frequency.

D. If role-based training is deployed: While important, training alone does not ensure continuous security assessment.

Reference:

CompTIA SecurityX Study Guide

OWASP Testing Guide

NIST Special Publication 800-53, "Security and Privacy Controls for Information Systems and Organizations"

Question: 78

[Security Architecture]
A security analyst discovered requests associated with IP addresses known for born legitimate 3nd bot-related traffic.
Which ofthe following should the analyst use to determine whether the requests are malicious?

A. User-agent string
B. Byte length of the request
C. Web application headers
D. HTML encoding field

Answer: A

Explanation:

The user-agent string can providevaluable information to distinguish between legitimate and bot- related traffic. It contains details about the browser, device, and sometimes the operating system of the client making the request.
Why Use User-Agent String?
Identify Patterns: User-agent strings can help identify patterns that are typical of bots or legitimate users.
Block Malicious Bots: Many bots use known user-agent strings, and identifying these can help block malicious requests.
Anomalies Detection: Anomalous user-agent strings can indicate spoofing attempts or malicious activity.
Other options provide useful information but may not be as effective for initial determination of the nature of the request:
B . Byte length of the request: This can indicate anomalies but does not provide detailed information about the client.
C . Web application headers: While useful, they may not provide enough distinction between legitimate and bot traffic.
D . HTML encoding field: This is not typically used for identifying the nature of the request. Reference:
CompTIA SecurityX Study Guide
"User-Agent Analysis for Security," OWASP
NIST Special Publication 800-94, "Guide to Intrusion Detection and Prevention Systems (IDPS)"

Question: 79

[Security Architecture]
An organization is required to
* Respond to internal andexternal inquiries in a timely manner
* Provide transparency.
* Comply with regulatory requirements
The organization has not experienced any reportable breaches but wants to be prepared if a breach occurs in the future.
Which of the following is the best way for the organization to prepare?

A. Outsourcing the handling of necessary regulatory filing to an external consultant
B. Integrating automated response mechanisms into the data subject access request process
C. Developing communication templates that have been vetted by internal and external counsel
D. Conducting lessons-learned activities and integrating observations into the crisis management plan

Answer: C

Explanation:

Preparing communication templates that have been vetted by both internal and external counsel ensures that the organization can respond quickly and effectively to internal and external inquiries, comply with regulatory requirements, and provide transparency in the event of a breach.

Why Communication Templates?

Timely Response: Pre-prepared templates ensure that responses are ready to be deployed quickly, reducing response time.

Regulatory Compliance: Templates vetted by counsel ensure that all communications meet legal and regulatory requirements.

Consistent Messaging: Ensures that all responses are consistent, clear, and accurate, maintaining the organization's credibility.

Crisis Management: Pre-prepared templates are a critical component of a broader crisis management plan, ensuring that all stakeholders are informed appropriately.

Other options, while useful, do not provide the same level of preparedness and compliance: A . Outsourcing to an external consultant: This may delay response times and lose internal control over the communication.

B . Integrating automated response mechanisms: Useful for efficiency but not for ensuring compliant and vetted responses.

D . Conducting lessons-learned activities: Important for improving processes but does not provide immediate preparedness for communication.

Reference:

CompTIA SecurityX Study Guide

NIST Special Publication 800-61 Revision 2, "Computer Security Incident Handling Guide"

ISO/IEC 27002:2013, "Information technology — Security techniques — Code of practice for information security controls"

Question: 80

[Security Architecture]

A security analyst isreviewing the following event timeline from an COR solution:

Time	F ■: ^ ■ ame	■ ■ e achnn	Action verdict
4.UB p m	hr-fepoivitfl docx	i iki save	Allowed
4 09 p nr	Fir-<t porting docx	Scan niliutud	pending
4.10 p m	hr-icpcrt?ng.d.jcx	Fife execute .	Allowed
■ fp p ni.	paychecks.jdss	File s&we	Allowed
416 p m	paychecks xiss	File shared	Allowed
4 17 p m	hr-reportnif] docx	Script launched	Allowed
4 19 pm.	iii-Tepornng.docx	Scan compiele	Malware found
4.20 p.m.	paychccks.xlix	Fife cd^	Allowed

Which of the following most likely has occurred and needs to be fixed?

A. The Dl P has failed to block malicious exfiltration and data tagging is not being utilized property B. An EDRbypass was utilized by a threat actor and updates must be installed by the administrator. C. A logic law has introduced a TOCTOU

vulnerability and must be addressed by the COR vendor D. A potential insider threat is being investigated and will be addressed by the senior management team.

Answer: C

Explanation:

The event timeline indicates a sequence where a file (hr-reporting.docx) was saved, scanned, executed, and eventually found to contain malware. The critical issue here is that the malware scan completed after the file was already executed. This suggests a Time-Of-Check to Time-Of-Use

(TOCTOU) vulnerability, where the state of the file changed between the time it was checked and the time it was used.

Reference:

CompTIA SecurityX Study Guide: Discusses TOCTOU vulnerabilities as a timing attack where the state of a resource changes after it has been validated.

NIST Special Publication 800-53, "Security and Privacy Controls for Federal Information Systems and Organizations": Recommends addressing TOCTOU vulnerabilities to ensure the integrity of security operations.

"The Art of Software Security Assessment" by Mark Dowd, John McDonald, and Justin Schuh: Covers logic flaws and timing vulnerabilities, including TOCTOU issues.

Question: 81

[Security Operations]

A security engineer is developing a solution to meet the following requirements?

- All endpoints should be able to establish telemetry with a SIEM.
- All endpoints should be able to be integrated into the XDR platform.
- SOC services should be able to monitor the XDR platform

Which of the following should the security engineer implement to meet the requirements?

A. CDR and central logging
B. HIDS and vTPM
C. WAF and syslog
D. HIPS and host-based firewall

Answer: D

Explanation:

To meet the requirements of having allendpoints establish telemetry with a SIEM, integrate into an XDR platform, and allow SOC services to monitor the XDR platform, the best approach is to implement Host Intrusion Prevention Systems (HIPS) and a host-based firewall. HIPS can provide detailed telemetry data to the SIEM and can be integrated into the XDR platform for comprehensive monitoring and response. The host-based firewall ensures that only authorized traffic is allowed, providing an additional layer of security.

Reference:

CompTIA SecurityX Study Guide: Describes the roles of HIPS and host-based firewalls in endpoint security and their integration with SIEM and XDR platforms.

NIST Special Publication 800-94, "Guide to Intrusion Detection and Prevention Systems (IDPS)": Highlights the capabilities of

HIPS for security monitoring and incident response.

"Network Security Monitoring" by Richard Bejtlich: Discusses the integration of various security tools, including HIPS and firewalls, for effective security monitoring.

Question: 82

[Governance, Risk, and Compliance (GRC)]

A systems administrator wants to reduce the number of failed patch deployments in an organization. The administrator discovers that system owners modify systems or applications in an ad hoc manner. Which of the following is the best way to reduce the number of failed patch deployments?

A. Compliance tracking B. Situational awareness C. Change management D. Quality assurance

Answer: C

Explanation:

To reduce the number of failed patch deployments, the systems administrator should implement a robust change management process. Change management ensures that all modifications to systems or applications are planned, tested, and approved before deployment. This systematic approach reduces the risk of unplanned changes that can cause patch failures and ensures that patches are deployed in a controlled and predictable manner.

Reference:

CompTIA SecurityX Study Guide: Emphasizes the importance of change management in maintaining system integrity and ensuring successful patch deployments.

ITIL (InformationTechnology Infrastructure Library) Framework: Provides best practices for change management in IT services.

"The Phoenix Project" by Gene Kim, Kevin Behr, and George Spafford: Discusses the critical role of change management in IT operations and its impact on system stability and reliability.

Question: 83

[Governance, Risk, and Compliance (GRC)]

An audit finding reveals that a legacy platform has not retained loos for more than 30 days The platform has been segmented due to its interoperability with newer technology. As a temporarysolution, the IT department changed the log retention to 120 days. Which of the following should the security engineer do to ensure the logs are being properly retained?

A. Configure a scheduled task nightly to save the logs
B. Configure event-based triggers to export the logs at a threshold.
C. Configure the SIEM to aggregate the logs
D. Configure a Python script to move the logs into a SQL database.

Answer: C

Explanation:

To ensure that logs from a legacy platform are properly retained beyond the default retention period, configuring the SIEM to aggregate the logs is the best approach. SIEM solutions are designed to

collect, aggregate, and store logs from various sources, providing centralized log management and retention. This setup ensures that logs are retained according to policy and can be easily accessed for analysis and compliance purposes.

Reference:

CompTIA SecurityX Study Guide: Discusses the role of SIEM in log management and retention.

NIST Special Publication 800-92, "Guide to Computer Security Log Management": Recommends the use of centralized log management solutions, such as SIEM, for effective log retention and analysis. "Security Information and Event Management (SIEM) Implementation" by David Miller: Covers best practices for configuring SIEM systems to aggregate and retain logs from various sources.

Question: 84

[Security Architecture]

A company wants to invest in research capabilities with the goal to operationalize the research output. Which of the following is the best option for a security architect to recommend?

A. Dark web monitoring
B. Threat intelligence platform
C. Honeypots
D. Continuous adversary emulation

Answer: B

Explanation:

Investing in a threat intelligence platform is the best option for a company looking to operationalize research output. A threat intelligence platform helps in collecting, processing, and analyzing threat data to provide actionable insights. These platforms integrate data from various sources, including dark web monitoring, honeypots, and other security tools, to offer a comprehensive view of the threat landscape.

Why a Threat Intelligence Platform?

Data Integration: It consolidates data from multiple sources, including dark web monitoring and honeypots, making it easier to analyze and derive actionableinsights.

Actionable Insights: Provides real-time alerts and reports on potential threats, helping the organization take proactive measures.

Operational Efficiency: Streamlines the process of threat detection and response, allowing the security team to focus on critical issues.

Research and Development: Facilitates the operationalization of research output by providing a platform for continuous monitoring and analysis of emerging threats.

Other options, while valuable, do not offer the same level of integration and operationalization capabilities:

A . Dark web monitoring: Useful for specific threat intelligence but lacks comprehensive operationalization.

C . Honeypots: Effective for detecting and analyzing specific attack vectors but not for broader threat intelligence.

D . Continuous adversary emulation: Important for testing defenses but not for integrating and operationalizing threat intelligence.

Reference:

CompTIA SecurityX Study Guide
"Threat Intelligence Platforms," Gartner Research
NIST Special Publication 800-150, "Guide to Cyber Threat Information Sharing"

Question: 85

[Security Engineering and Cryptography]

Which of the following is the main reason quantum computing advancements are leading companies and countries to deploy new encryption algorithms?

A. Encryption systems based on large prime numbers will be vulnerable to exploitation
B. Zero Trust security architectures will require homomorphic encryption.
C. Perfect forward secrecy will prevent deployment of advanced firewall monitoring techniques
D. Quantum computers willenable malicious actors to capture IP traffic in real time

Answer: A

Explanation:

Advancements in quantum computing pose a significant threat to current encryption systems, especially those based on the difficulty of factoring large prime numbers, such as RSA. Quantum computers have the potential to solve these problems exponentially faster than classical computers, making current cryptographic systems vulnerable.

Why Large Prime Numbers are Vulnerable:

Shor's Algorithm: Quantum computers can use Shor's algorithm to factorize large integers efficiently, which undermines the security of RSA encryption.

Cryptographic Breakthrough: The ability to quickly factor large prime numbers means that encrypted data, which relies on the hardness of thismathematical problem, can be decrypted.

Other options, while relevant, do not capture the primary reason for the shift towards new encryption algorithms:

B . Zero Trust security architectures: While important, the shift to homomorphic encryption is not the main driver for new encryption algorithms.

C . Perfect forward secrecy: It enhances security but is not the main reason for new encryption algorithms.

D . Real-time IP traffic capture: Quantum computers pose a more significant threat to the underlying cryptographic algorithms than to the real-time capture of traffic.

Reference:

CompTIA SecurityX Study Guide
NIST Special Publication 800-208, "Recommendation for Stateful Hash-Based Signature Schemes" "Quantum Computing and Cryptography," MIT Technology Review

Question: 86

[Security Architecture]

A network engineer must ensure that always-on VPN access is enabled Curt restricted to company assets Which of the following best describes what the engineer needs to do''

A. Generate device certificates using the specific template settings needed
B. Modify signing certificates in order to support IKE version 2
C. Create a wildcard certificate for connections from public networks
D. Add the VPN hostname as a SAN entry on the root certificate

Answer: A

Explanation:

To ensure always-on VPN access is enabled and restricted to company assets, the network engineer needs to generate device certificates using the specific template settings required for the company's VPN solution. These certificates ensure that only authorized devices can establish a VPN connection. Why Device Certificates are Necessary:
Authentication: Device certificates authenticate company assets, ensuring that only authorized devices can access the VPN.
Security: Certificates provide a higher level of security compared to username and password combinations, reducing the risk of unauthorized access.
Compliance: Certificates help in meeting security policies and compliance requirements by ensuring that only managed devices can connect to the corporate network.
Other options do not provide the same level of control and security for always-on VPN access:
B . Modify signing certificates for IKE version 2: While important for VPN protocols, it does not address device-specific authentication.
C . Create a wildcard certificate: This is not suitable for device-specific authentication and could introduce security risks.
D . Add the VPN hostname as a SAN entry: This is more related to certificate management and does not ensure device-specific authentication.
Reference:
CompTIASecurityX Study Guide
"Device Certificates for VPN Access," Cisco Documentation
NIST Special Publication 800-77, "Guide to IPsec VPNs"

Question: 87

[Emerging Technologies and Threats]
A company that uses containers to run its applications is required to identify vulnerabilities on every container image in a private repository The security team needs to be able to quickly evaluate whether to respond to a given vulnerability Which of the following, will allow the security team to achieve the objective with the last effort?

A. SAST scan reports
B. Centralized SBoM
C. CIS benchmark compliance reports
D. Credentialed vulnerability scan

Answer: B

Explanation:

A centralized Software Bill of Materials (SBoM) is the best solution for identifying vulnerabilities in container images in aprivate repository. An SBoM provides a comprehensive inventory of all components, dependencies, and their versions within a container image, facilitating quick evaluation and response to vulnerabilities.
Why Centralized SBoM?
Comprehensive Inventory: An SBoM lists all software components, including their versions and dependencies, allowing for thorough vulnerability assessments.

Quick Identification: Centralizing SBoM data enables rapid identification of affected containers when a vulnerability is disclosed.

Automation: SBoMs can be integrated into automated tools for continuous monitoring and alerting of vulnerabilities.

Regulatory Compliance: Helps in meeting compliance requirements by providing a clear and auditable record of all software components used.

Other options, while useful, do not provide the same level of comprehensive and efficient vulnerability management:

A . SAST scan reports: Focuses on static analysis of code but may not cover all components in container images.

C . CIS benchmark compliance reports: Ensures compliance with security benchmarks but does not provide detailed component inventory.

D . Credentialed vulnerability scan: Useful for in-depth scans but may not be as efficient for quick vulnerability evaluation.

Reference:

CompTIA SecurityX Study Guide

"Software Bill of Materials (SBoM)," NIST Documentation

"Managing Container Security with SBoM," OWASP

Question: 88

[Security Architecture]

A security engineer performed a code scan that resulted in many false positives. The security engineer must find asolution that improves the quality of scanning results before application deployment. Which of the following is the best solution?

A. Limiting the tool to a specific coding language and tuning the rule set
B. Configuring branch protection rules and dependency checks
C. Using an application vulnerability scanner to identify coding flaws in production
D. Performing updates on code libraries before code development

Answer: A

Explanation:

To improve the quality of code scanning results and reduce false positives, the best solution is to limit the tool to a specific coding language and fine-tune the rule set. By configuring the code scanning tool to focus on the specific language used in the application, the tool can more accurately identify relevant issues and reduce the number of false positives. Additionally, tuning the rule set ensures that the tool's checks are appropriate for the application's context, further improving the accuracy ofthe scan results.

Reference:

CompTIA SecurityX Study Guide: Discusses best practices for configuring code scanning tools, including language-specific tuning and rule set adjustments.

"Secure Coding: Principles and Practices" by Mark G. Graff and Kenneth R. van Wyk: Highlights the importance of customizing code analysis tools to reduce false positives.

OWASP (Open Web Application Security Project): Provides guidelines for configuring and tuning code scanning tools to improve accuracy.

Question: 89

[Security Architecture]
A security engineer needs 10 secure the OT environment based on me following requirements

- Isolate the OT network segment
- Restrict Internet access.
- Apply security updates two workstations
- Provide remote access to third-party vendors

Which of the following design strategies should the engineer implement to best meetthese requirements?

A. Deploy a jump box on the third party network to access the OT environment and provide updates using a physical delivery method on the workstations

B. Implement a bastion host in the OT network with security tools in place to monitor access and use a dedicated update server for the workstations.

C. Enable outbound internet access on the OT firewall to any destination IP address and use the centralized update server for the workstations

D. Create a staging environment on the OT network for the third-party vendor to access and enable automatic updates on the workstations.

Answer: B

Explanation:

To secure the Operational Technology (OT) environment based on the given requirements, the best approach is to implement a bastion host inthe OT network. The bastion host serves as a secure entry point for remote access, allowing third-party vendors to connect while being monitored by security tools. Using a dedicated update server for workstations ensures that security updates are applied in a controlled manner without direct internet access.

Reference:

CompTIA SecurityX Study Guide: Recommends the use of bastion hosts and dedicated update servers for securing OT environments.

NIST Special Publication 800-82, "Guide to Industrial Control Systems (ICS) Security": Advises on isolating OT networks and using secure remote access methods.

"Industrial Network Security" by Eric D. Knapp and Joel Thomas Langill: Discusses strategies for securing OT networks, including the use of bastion hosts and update servers.

Question: 90

[Security Architecture]
A news organization wants to implement workflows that allow users to request that untruthful data be retraced and scrubbed from online publications to comply with the right to be forgotten Which of the following regulations is the organization most likely trying to address'

A. GDPR

B. COPPA

C. CCPA

D. DORA

Answer: A

Explanation:

The General Data Protection Regulation (GDPR) is the regulation most likely being addressed by the news organization. GDPR includes provisions for the "right to be forgotten," which allows individuals to request the deletion of personal data that is no longer necessary for the purposes for which it was collected. This regulation aims to protect the privacy and personal data of individuals within the European Union.

Reference:

CompTIA SecurityX Study Guide: Covers GDPR and its requirements, including the right to be forgotten.

GDPR official documentation: Details the rights of individuals, including data erasure and the right to beforgotten.

"GDPR: A Practical Guide to the General Data Protection Regulation" by IT Governance Privacy Team: Provides a comprehensive overview of GDPR compliance, including workflows for data deletion requests.

Question: 91

[Security Architecture]

An organization wants to implement a platform to better identify which specific assets are affected by a given vulnerability. Which of the following components provides the best foundation to achieve this goal?

A. SASE
B. CMDB
C. SBoM
D. SLM

Answer: B

Explanation:

A Configuration Management Database (CMDB) provides the best foundation for identifying which specific assets are affected by a given vulnerability. A CMDB maintains detailed information about the IT environment, including hardware, software, configurations, and relationships between assets. This comprehensive view allows organizations to quickly identify and address vulnerabilities affecting specific assets.

Reference:

CompTIA SecurityX Study Guide: Discusses the role of CMDBs in asset management and vulnerability identification.

ITIL (Information Technology Infrastructure Library) Framework: Recommends the use of CMDBs for effective configuration and asset management.

"Configuration Management Best Practices" by Bob Aiello and Leslie Sachs: Covers the importance of CMDBs in managing IT assets and addressing vulnerabilities.

Question: 92

[Identity and Access Management (IAM)]

A cloud engineer needs to identify appropriate solutions to:

- Provide secure access to internal and external cloud resources.
- Eliminate split-tunnel traffic flows.
- Enable identity and access management capabilities.

Which of the following solutions arc the most appropriate? (Select two).

A. Federation
B. Microsegmentation
C. CASB
D. PAM
E. SD-WAN
F. SASE

Answer: C,F

Explanation:

To provide secure access tointernal and external cloud resources, eliminate split-tunnel traffic flows, and enable identity and access management capabilities, the most appropriate solutions are CASB (Cloud Access Security Broker) and SASE (Secure Access Service Edge).

Why CASB and SASE?

CASB (Cloud Access Security Broker):

Secure Access: CASB solutions provide secure access to cloud resources by enforcing security policies and monitoring user activities.

Identity and Access Management: CASBs integrate with identity and access management (IAM) systems to ensure that only authorized users can access cloud resources.

Visibility and Control: They offer visibility into cloud application usage and control over data sharing and access.

SASE (Secure Access Service Edge):

Eliminate Split-Tunnel Traffic: SASE integrates network security functions with WAN capabilities to ensure secure access without the need for split-tunnel configurations.

Comprehensive Security: SASE provides a holistic security approach, including secure web gateways, firewalls, and zero trust network access (ZTNA).

Identity-Based Access: SASE leverages IAM to enforce access controls based on user identity and context.

Other options, while useful, do not comprehensively address all the requirements:

A . Federation: Useful for identity management but does not eliminate split-tunnel traffic or provide comprehensive security.

B . Microsegmentation: Enhances security within the network but does not directly address secure access to cloud resources or split-tunnel traffic.

D . PAM (Privileged Access Management): Focuses on managing privileged accounts and does not provide comprehensive access control for internal and external resources.

E . SD-WAN: Enhances WAN performance but does not inherently provide the identity and access management capabilities or eliminate split-tunnel traffic.

Reference:

CompTIA SecurityX Study Guide

"CASB: Cloud Access Security Broker," Gartner Research

Question: 93

[Governance, Risk, and Compliance (GRC)]

During a gap assessment, an organization notes that OYOD usage is asignificant risk. The organization implemented administrative policies prohibiting BYOD usage However, the organization has not implemented technical controls to prevent the unauthorized use of BYOD assets when accessing the organization's resources. Which of the following solutions

should the organization implement to b»« reduce the risk of OYOD devices? (Select two).

A. Cloud 1AM to enforce the use of token based MFA
B. Conditional access, to enforce user-to-device binding
C. NAC, to enforce device configuration requirements
D. PAM. to enforce local password policies
E. SD-WAN. to enforce web content filtering through external proxies
F. DLP, to enforce data protection capabilities

Answer: B,C

Explanation:

To reduce the risk of unauthorized BYOD (Bring Your Own Device) usage, the organization should implement Conditional Access and Network Access Control (NAC).

Why Conditional Access and NAC?

Conditional Access:

User-to-Device Binding: Conditional access policies can enforce that only registered and compliant devices are allowed to access corporate resources.

Context-Aware Security: Enforces access controls based on the context of the access attempt, such as user identity, device compliance, location, and more.

Network Access Control (NAC):

DeviceConfiguration Requirements: NAC ensures that only devices meeting specific security configurations are allowed to connect to the network.

Access Control: Provides granular control over network access, ensuring that BYOD devices comply with security policies before gaining access.

Other options, while useful, do not address the specific need to control and secure BYOD devices effectively:

A . Cloud IAM to enforce token-based MFA: Enhances authentication security but does not control device compliance.

D . PAM to enforce local password policies: Focuses on privileged account management, not BYOD control.

E . SD-WAN to enforce web content filtering: Enhances network performance and security but does not enforce BYOD device compliance.

F . DLP to enforce data protection capabilities: Protects data but does not control BYOD device access and compliance.

Reference:

CompTIA SecurityX Study Guide

"Conditional Access Policies," Microsoft Documentation

"Network Access Control (NAC)," Cisco Documentation

Question: 94

[Governance, Risk, and Compliance (GRC)]

Audit findings indicate several user endpoints are not utilizing full disk encryption During me remediation process, a compliance analyst reviews the testing details for the endpoints and notes the endpoint device configuration does not support full disk encryption Which of the following is the most likely reason me device must be replaced'

A. The HSM is outdated and no longer supported by the manufacturer
B. The vTPM was not properly initialized and is corrupt.

C. The HSM is vulnerable to common exploits and a firmware upgrade is needed
D. The motherboard was not configured with a TPM from the OEM supplier.
E. The HSM does not support sealing storage

Answer: D

Explanation:

The most likely reason the device must be replaced is that the motherboard was not configured with a TPM (Trusted Platform Module) from the OEM (Original Equipment Manufacturer) supplier.
Why TPM is Necessary for Full Disk Encryption:
Hardware-Based Security: TPM provides a hardware-based mechanism to store encryption keys securely, which is essential for full disk encryption.
Compatibility: Full disk encryption solutions, such as BitLocker, require TPM to ensure that the encryption keys are securely stored and managed.
Integrity Checks: TPM enables system integrity checks during boot, ensuring that the device has not been tampered with.
Other options do not directly address the requirement for TPM in supporting full disk encryption:
A . The HSM is outdated: While HSM (Hardware Security Module) is important for security, it is not typically used for full disk encryption.
B . The vTPM was not properly initialized: vTPM (virtual TPM) is less common and not typically a reason for requiring hardware replacement.
C . The HSM is vulnerable to common exploits: This would require a firmware upgrade, not replacement of the device.
E . The HSM does not support sealing storage: Sealing storage is relevant but not the primary reason for requiring TPM for full disk encryption.
Reference:
CompTIA SecurityX Study Guide
"Trusted Platform Module (TPM) Overview," Microsoft Documentation
"BitLocker Deployment Guide," Microsoft Documentation

Question: 95

[Emerging Technologies and Threats]
A global manufacturing company has an internal application mat is critical to making products This application cannot be updated and must Beavailable in the production area A security architect is implementing security for the application.
Which of the following best describes the action the architect should take-?

A. Disallow wireless access to the application.
B. Deploy Intrusion detection capabilities using a network tap
C. Create an acceptable use policy for the use of the application
D. Create a separate network for users who need access to the application

Answer: D

Explanation:

Creating a separate network for users who need access tothe application is the best action to secure an internal application that is critical to the production area and cannot be updated.

Why Separate Network?

Network Segmentation: Isolates the critical application from the rest of the network, reducing the risk of compromise and limiting the potential impact of any security incidents.

Controlled Access: Ensures that only authorized users have access to the application, enhancing security and reducing the attack surface.

Minimized Risk: Segmentation helps in protecting the application from vulnerabilities that could be exploited from other parts of the network.

Other options, while beneficial, do not provide the same level of security for a critical application:

A . Disallow wireless access: Useful but does not provide comprehensive protection.

B . Deploy intrusion detection capabilities using a network tap: Enhances monitoring but does not provide the same level of isolation and control.

C . Create an acceptable use policy: Important for governance but does not provide technical security controls.

Reference:

CompTIA SecurityX Study Guide

NIST Special Publication 800-125, "Guide to Security for Full Virtualization Technologies"

"Network Segmentation Best Practices," Cisco Documentation

Question: 96

[Security Architecture]

Asoftware company deployed a new application based on its internal code repository Several customers are reporting anti-malware alerts on workstations used to test the application Which of the following is the most likely cause of the alerts?

A. Misconfigured code commit
B. Unsecure bundled libraries
C. Invalid code signing certificate
D. Data leakage

Answer: B

Explanation:

The most likely cause of the anti-malware alerts on customer workstations is unsecure bundled libraries. When developing and deploying new applications, it is common for developers to use third- party libraries. If these libraries are not properly vetted for security, they can introduce vulnerabilities or malicious code.

Why Unsecure Bundled Libraries?

Third-Party Risks: Using libraries that are not secure can lead to malware infections if the libraries contain malicious code or vulnerabilities.

Code Dependencies: Libraries may have dependencies that are not secure, leading to potential security risks.

Common Issue: This is a frequent issue in software development where libraries are used for convenience but not properly vetted for security.

Other options, while relevant, are less likely to cause widespread anti-malware alerts:

A . Misconfigured code commit: Could lead to issues but less likely to trigger anti-malware alerts.

C . Invalid code signing certificate: Would lead to trust issues but not typically anti-malware alerts.

D . Data leakage: Relevant for privacy concerns but not directly related to anti-malware alerts.

Reference:

CompTIA SecurityX Study Guide

"Securing Open Source Libraries," OWASP

"Managing Third-Party Software Security Risks," Gartner Research

Question: 97

[Security Architecture]

A senior security engineer flags me following log file snippet as hawing likely facilitated an attacker's lateral movement in a recent breach:

```
[log.txt]
...
qry_source: 19.27.214.22 TCP/53
qry_dest: 199.105.22.13 TCP/53
qry_type: AXFR
| in comptia.org
------------| directoryserver1 A 10.80.8.10
------------| directoryserver2 A 10.80.8.11
------------| directoryserver3 A 10.80.8.12
------------| internal-dns A 10.80.9.1
------------| www-int A 10.80.9.2
------------| fshare A 10.80.9.4
------------| elp A 10.80.9.5
------------| man-crit-apps A 10.81.22.23
...
```

Which of the following solutions, if implemented, would mitigate the nsk of this issue reoccurnnp?

A. Disabling DNS zone transfers
B. Restricting DNS traffic to UDP'W
C. Implementing DNS masking on internal servers
D. Permitting only clients from internal networks to query DNS

Answer: A

Explanation:

The log snippet indicates a DNS AXFR (zone transfer) request, which can be exploited by attackers to gather detailed information about an internal network's infrastructure. Disabling DNS zone transfers is the best solution to mitigate this risk. Zone transfers should generally be restricted to authorized secondary DNS servers and not be publicly accessible, as they can reveal sensitive network information that facilitates lateral movement during an attack.

Reference:

CompTIA SecurityX Study Guide: Discusses the importance of securing DNS configurations, including restricting zone transfers.

NIST Special Publication 800-81, "Secure Domain Name System (DNS) Deployment Guide": Recommends restricting or disabling DNS zone transfers to prevent information leakage.

Question: 98

[Security Architecture]

A security operations engineer needs to prevent inadvertent data disclosure when encrypted SSDs are reused within an

enterprise. Which of the following is the most secure way to achieve this goal?

A. Executing a script that deletes and overwrites all data on the SSD three times
B. Wiping the SSD through degaussing
C. Securely deleting the encryption keys used by the SSD
D. Writing non-zero, random data to all cells of the SSD

Answer: C

Explanation:

The most secure way to prevent inadvertent data disclosure when encrypted SSDs are reused is to securely delete the encryption keys used by the SSD. Without the encryption keys, the data on the SSD remains encrypted and is effectively unreadable, rendering any residual data useless. This method is more reliable and efficient than overwriting data multiple times or using other physical destruction methods.

Reference:

CompTIA SecurityX Study Guide: Highlights the importance of managing encryption keys and securely deleting them to protect data.

NIST Special Publication 800-88, "Guidelines for Media Sanitization": Recommends cryptographic erasure as a secure method for sanitizing encrypted storage devices.

Question: 99

[Governance, Risk, and Compliance (GRC)]

A security engineer is given the following requirements:

- An endpoint must only execute Internally signed applications
- Administrator accounts cannot install unauthorized software.
- Attempts to run unauthorized software must be logged

Which of the following best meets these requirements?

A. Maintaining appropriate account access through directory management and controls
B. Implementing a CSPM platform to monitor updates being pushed to applications
C. Deploying an EDR solution to monitor and respond to software installation attempts
D. Configuring application control with blocked hashes and enterprise-trusted root certificates

Answer: D

Explanation:

To meet the requirements of only allowing internally signed applications, preventing unauthorized software installations, and logging attempts to run unauthorized software, configuring application control with blocked hashes and enterprise-trusted root certificates is the best solution. This approach ensures that only applications signed by trusted certificates are allowed to execute, while all other attempts are blocked and logged. It effectively prevents unauthorized software installations by restrictingexecution to pre-approved applications.

Reference:

CompTIA SecurityX Study Guide: Describes application control mechanisms and the use of trusted certificates to enforce security policies.

NIST Special Publication 800-53, "Security and Privacy Controls for Information Systems and Organizations": Recommends application whitelisting and execution control for securing endpoints. "The Application Security Handbook" by Mark Dowd, John McDonald, and Justin Schuh: Covers best practices for implementing application control and managing trusted certificates

Question: 100

[Security Architecture]

A security analyst is troubleshooting the reason a specific user is having difficulty accessing company resources The analyst reviews the following information:

user	Source IP	Source location	user assigned location	MFA satisfied'?	Sign in status
SALES 1	a 11 4 w	Germany	Franck	**Yes**	Blocked
SALES1	3.11 4 16	Germany	Fr^ice	Yes	Blocked
ACCT1	V92.1S&.4 IS	Fiance	Fiance	No	Allowed
SALES1	8 11 4 i*3	Germany	France	Yes	Blacked
Accn	fl 11 4 IS	Germany	F rance	Yes	Blocked
SALLS2	a 11420	nance	liance	**Yes**	Allowed

Which of the following is most likely the cause of the issue?

A. The local network access has been configured tobypass MFA requirements.
B. A network geolocation is being misidentified by the authentication server
C. Administrator access from an alternate location is blocked by company policy
D. Several users have not configured their mobile devices toreceive OTP codes

Answer: B

Explanation:

The table shows that the user "SALES1" is consistently blocked despite having met the MFA requirements. The common factor in these blocked attempts is the source IP address (8.11.4.16) being identified as from Germany while the user is assigned to France. This discrepancy suggests that the network geolocation is being misidentified by the authentication server, causing legitimate access attempts to be blocked.

Why Network Geolocation Misidentification?

Geolocation Accuracy: Authentication systems often use IP geolocation to verify the location of access attempts. Incorrect geolocation data can lead to legitimate requests being denied if they appear to come from unexpected locations.

Security Policies: Company security policies might block access attempts from certain locations to prevent unauthorized access. If the geolocation is wrong, legitimate users can be inadvertently blocked.

Consistent Pattern: The user "SALES1" from the IP address 8.11.4.16 is always blocked, indicating a consistent issue with geolocation.

Other options do not align with the pattern observed:

A . Bypass MFA requirements: MFA is satisfied, so bypassing MFA is not the issue.

C . Administrator access policy: This is about user access, not specific administrator access.

D . OTP codes: The user has satisfied MFA, so OTP code configuration is not the issue.

Reference:

CompTIA SecurityX Study Guide
"Geolocation and Authentication," NIST Special Publication 800-63B
"IP Geolocation Accuracy," Cisco Documentation

Question: 101

[Security Architecture]
A security analyst received a report that an internal web page is down after a company-wide update to the web browser Given the following error message:

Your connewti^n re nob private.

~~tanxorn might IM* trying tn ataa^ your information for www. i ntcrnaiwcha i re . nornpany . corn

NET::ERR TERT WEAR SZSNATURZ ALGORITHM

Which of the following is the b«« way to fix this issue?

A. Rewriting any legacy web functions
B. Disabling all deprecated ciphers
C. Blocking all non-essential pons
D. Discontinuing the use of self-signed certificates

Answer: D

Explanation:

The error message"NET::ERR_CERT_WEAK_SIGNATURE_ALGORITHM" indicates that the web browser is rejecting the certificate because it uses a weak signature algorithm. This commonly happens with self-signed certificates, which often use outdated or insecure algorithms.

Why Discontinue Self-Signed Certificates?

Security Compliance: Modern browsers enforce strict security standards and may reject certificates that do not comply with these standards.

Trusted Certificates: Using certificates from a trusted Certificate Authority (CA) ensures compliance with security standards and is less likely to be flagged as insecure.

Weak Signature Algorithm: Self-signed certificates might use weak algorithms like MD5 or SHA-1, which are considered insecure.

Other options do not address the specific cause of the certificate error:

A . Rewriting legacy web functions: Does not address the certificate issue.

B . Disabling deprecated ciphers: Useful for improving security but not related to the certificate error.

C . Blocking non-essential ports: This is unrelated to the issue of certificate validation.

Reference:
CompTIA SecurityX Study Guide
"Managing SSL/TLS Certificates," OWASP
"Best Practices for Certificate Management," NIST Special Publication 800-57

Question: 102

[Security Architecture]
A security analystreviews the following report:

	i whrin	Chassis manufacturer	08	Application tiweioper	Vcormr

Producl A	united states	Local company A	Deban 1*	Ur i^ntiwn	Ghada security Consulting
Product B	United States	Global company B	Red Hal Enterprise! Linux	Developer B	Eiy Box Vulnerabilities

Which of the following assessments is the analyst performing?

A. System
B. Supply chain
C. Quantitative
D. Organizational

Answer: B

Explanation:

The table shows detailed information about products, includinglocation, chassis manufacturer, OS, application developer, and vendor. This type of information is typically assessed in a supply chain assessment to evaluate the security and reliability of components and services from different suppliers.

Why Supply Chain Assessment?

Component Evaluation: Assessing the origin and security of each component used in the products, including hardware, software, and third-party services.

Vendor Reliability: Evaluating the security practices and reliability of vendors involved in providing components or services.

Risk Management: Identifying potential risks associated with the supply chain, such as vulnerabilities in third-party components or insecure development practices.

Other types of assessments do not align with the detailed supplier and component information provided:

A . System: Focuses on individual system security, not the broader supply chain.

C . Quantitative: Focuses on numerical risk assessments, not supplier information.

D . Organizational: Focuses on internal organizational practices, not external suppliers.

Reference:

CompTIA SecurityX Study Guide

NIST Special Publication 800-161, "Supply Chain Risk Management Practices for Federal Information Systems and Organizations"

"Supply Chain Security Best Practices," Gartner Research

Question: 103

[Security Architecture]

A company's help desk is experiencing a large number of calls from the finance department slating access issues to www bank com The security operations center reviewed the following security logs:

n--r	t?B S r F 5 aibnfet	ZDZiT i or.	fl"Enz-a	^3 Feecfl^tid TP (pub lie-	HTTP S'■ ■ '■ IB □ode
U«=12	_.: .2 1 : .2.52 2 4	rinan :*	**WHT7 . ES—k. C 3Z**	=5. i^e^je^B^ £5.145 .“£.34	43 5
J_{H}TE31	1.0,203.2.213X24	■ Ljzar.^t	www . ba r. k . c z :L		455
7 — : 4E	i ;.; ■ -3.76/34		-JJ WW ■	58,17,52,^8	san
7^{T}; r rJ:i	2 D.2.156/2$	FLninea	**WWW- B<pik . CHIP**	$6S_{T}$>44.25-24	49S

tae^S!	L&. 2-: 122 is		wwh*.bank, CCIE	Ui .17.^2.79	2u0

Which of the following is most likely the cause of the issue?

A. Recursive DNS resolution is failing B. The DNS record has been poisoned. C. DNS traffic is being sinkholed.

D. The DNS was set up incorrectly.

Answer: C

Explanation:

Sinkholing, or DNS sinkholing, is a method used to redirect malicious traffic to a safe destination. This technique is often employed by security teams to prevent access to malicious domains by substituting a benign destination IP address.

In the given logs, users from the finance department are accessing www.bank.com and receiving HTTP status code 495. This status code is typically indicative of a client certificate error, which can occur if the DNS traffic is being manipulated or redirected incorrectly. The consistency in receiving the same HTTP status code across different users suggests a systematic issue rather than an isolated incident.

Recursive DNS resolution failure (A) would generally lead to inability to resolve DNS at all, not to a specific HTTP error. DNS poisoning (B) could result in usersbeing directed to malicious sites, but again, would likely result in a different set of errors or unusual activity.

Incorrect DNS setup (D) would likely cause broader resolution issues rather than targeted errors like the one seen here. By reviewing the provided data, it is evident that the DNS traffic for www.bank.com is being rerouted improperly, resulting in consistent HTTP 495 errors for the finance department users. Hence, the most likely cause is that the DNS traffic is being sinkholed.

Reference:

CompTIA SecurityX study materials on DNS security mechanisms.

Standard HTTP status codes and their implications.

Question: 104

[Identity and Access Management (IAM)]

A company wants to implement hardware security key authentication for accessing sensitive information systems The goal is to prevent unauthorized users from gaining access with a stolen password Which of the following models should the company implement to b«st solve this issue?

A. Rule based

B. Time-based

C. Role based

D. Context-based

Answer: D

Explanation:

Context-based authentication enhances traditional security methods by incorporating additional layers of information about the user's current environment and behavior. This can include factors such as the user's location, the time of access,

the device used, and the behavior patterns. It is particularly useful in preventing unauthorized access even if an attacker has obtained a valid password.

Rule-based (A) focuses on predefined rules and is less flexible in adapting to dynamic threats. Time-based (B) authentication considers the time factor but doesn't provide comprehensive protection against stolen credentials.

Role-based (C) is more about access control based on the user's role within the organization rather than authenticating the user based on current context.

By implementing context-based authentication, the company can ensure that even if a password is compromised, the additional contextual factors required for access (which an attacker is unlikely to possess) provide a robust defense mechanism.

Reference:

CompTIA SecurityX guide on authentication models and best practices.

NIST guidelines on authentication and identity proofing.

Analysis of multi-factor and adaptive authentication techniques.

Question: 105

[Security Architecture]

A security analyst is reviewingsuspicious log-in activity and sees the following data in the SICM:

Aconunl	AppIrCfllliWl	Aij^inr^aiinr. server	Statu*	Risk
SALES1 SALES1	CuSlO-ICi mana^ei Payroll	LDAP-US LDAP-'JS	Success Success	LOW Low
AD MSN	Emsil	LDA=-JS	Failure	High
SALES!	Email	LDAP El.J	Unknown	Unknown
MARKFTi	Cu&trKner meager	1. DAP US	Success	1 nw
FINANCE!	**Emoil**	LUAP-CU	**Unknown**	Unknown

Which of the following is the most appropriate action for the analyst to take?

A. Update the log configuration settings on the directory server that Is not being captured properly.
B. Have the admin account owner change their password to avoid credential stuffing.
C. Block employees from logging in to applications that are not part of their business area.
D. implement automation to disable accounts that nave been associated with high-risk activity.

Answer: D

Explanation:

The log-in activity indicates a security threat, particularly involving the ADMIN account with a high- risk failure status. This suggests that the account may be targeted by malicious activities such as credential stuffing or brute force attacks.

Updating log configuration settings (A) may help in better logging future activities but does not address the immediate threat.

Changing the admin account password (B) is a good practice but may not fully mitigate the ongoing threat if the account has already been compromised.

Blocking employees (C) from logging into non-business applications might help in reducing attack surfaces but doesn't directly address the compromised account issue.

Implementing automation to disable accounts associated with high-risk activities ensures an immediate response to the detected threat, preventing further unauthorized access and allowing time for thorough investigation and

remediation.

Reference:

CompTIA SecurityX guide on incident response and account management.

Best practices for handling compromised accounts.

Automation tools and techniques for security operations centers (SOCs).

Question: 106

[Security Architecture]

« r : z " r. ~	rioat	I ·J- ■J.Efi	3*06^1 13Q-	Gtri be 1OC«T xor.
3a.lei 1	= J £8	4/1€	S : 2 5 a .zu.	USA
3ale=_l	? c-ie	4/1"	9 s IC a.m.	uai
		i/i a	9: 7 H .	P5R
s1].c3_]	he-id		S : Cl a .TL .	diSk
Sal«_l	FC-€4	4/21	0 2 5 = a.n.	HF.

Which of the following is the security engineer most likely doing?

A. Assessing log inactivities using geolocation to tune impossible Travel rate alerts
B. Reporting on remote log-in activities to track team metrics
C. Threat hunting for suspicious activity from an insider threat
D. Baselining user behavior to support advancedanalytics

Answer: A

Explanation:

In the given scenario, the security engineer is likely examining login activities and their associated geolocations. This type of analysis is aimed at identifying unusual login patterns that might indicate

an impossible travel scenario. An impossible travel scenario is when a single user account logs in from geographically distant locations in a short time, which is physically impossible. By assessing login activities using geolocation, the engineer can tune alerts to identify and respond to potential security breaches more effectively.

Question: 107

[Security Operations]

A security administrator needs to automate alerting. The server generates structured log files that need to be parsed to determine whether an alarm has been triggered Given the following code function:

```
def parse_logs(logfile):
    with open(logfile) as log_file:
        parsed_log = json.load(log_file)
    if parsed_log["error_log"]["system_1"]["InAlarmState"]:
```

Which of the following is most likely the log input that the code will parse? A)

```
["error_log]
    ["system_1"]
        ["InAlarmState": True]
```

B)

```
<"error_log"><"system_1"></"InAlarmState"="True"></"system_1"></"error_log">
```

C)

```
error_log:
  - system_1:
      InAlarmState: True
```

D)

```
{"error_log": {"system_1": {"InAlarmState": True }}}
```

A. Option A B. Option B C. Option C D. Option D

Answer: A

Explanation:

The code function provided in the question seems tobe designed to parse JSON formatted logs to check for an alarm state. Option A is a JSON format that matches the structure likely expected by the code. The presence of the "error_log" and "InAlarmState" keys suggests that this is the correct input format.

Reference: CompTIA SecurityX Study Guide, Chapter on Log Management and Automation, Section on Parsing Structured Logs.

Question: 108

[Security Architecture]

An organization is implementing Zero Trust architecture A systems administrator must increase the effectiveness of the organization's context-aware access system. Which of the following is the best way to

improve the effectiveness of the system?

A. Secure zone architecture
B. Always-on VPN
C. Accurate asset inventory
D. Microsegmentation

Answer: D

Explanation:

Microsegmentation is a critical strategy within Zero Trust architecture that enhances context-aware access systems by dividing the network into smaller, isolated segments. This reduces the attack surface and limits lateral movement of attackers within the network. It ensures that even if one segment is compromised, the attacker cannot easily access other segments. This granular approach to network security is essential for enforcing strict access controls and monitoring within Zero Trust environments.
Reference: CompTIA SecurityX Study Guide, Chapter on Zero Trust Security, Section on Microsegmentation and Network Segmentation.

Question: 109

[Security Architecture]
A company detects suspicious activity associated with external connections Security detection tools are unable tocategorize this activity. Which of the following is the best solution to help the company overcome this challenge?

A. Implement an Interactive honeypot
B. Map network traffic to known loCs.
C. Monitor the dark web
D. implement UEBA

Answer: D

Explanation:

User and Entity Behavior Analytics (UEBA) is the best solution to help the company overcome challenges associated with suspicious activity that cannot be categorized by traditional detection tools. UEBA uses advanced analytics to establish baselines of normal behavior for users and entities

within the network. It then identifies deviations from these baselines, which may indicate malicious activity. This approach is particularly effective for detecting unknown threats and sophisticated attacks that do not match known indicators of compromise (IoCs).

Reference: CompTIA SecurityX Study Guide, Chapter on Advanced Threat Detection and Mitigation, Section on User and Entity Behavior Analytics (UEBA).

Question: 110

SIMULATION

[Security Architecture]

You are a security analyst tasked with interpreting an Nmap scan output from company's privileged network.

The company's hardening guidelines indicate the following:

There should be one primary server or service per device.

Only default ports should be used.

Non-secure protocols should be disabled.

INSTRUCTIONS

Using the Nmap output, identify the devices on the network and their roles, and any open ports that should be closed.

For each device found by Nmap, add a device entry to the Devices Discovered list, with the following information:

The IP address of the device

The primary server or service of the device (Note that each IP should by associated with one service/port only)

The protocol(s) that should be disabled based on the hardening guidelines (Note that multiple ports may need to be closed to comply with the hardening guidelines)

If at any time you would like to bring back the initial state of the simulation, please click the Reset All button.

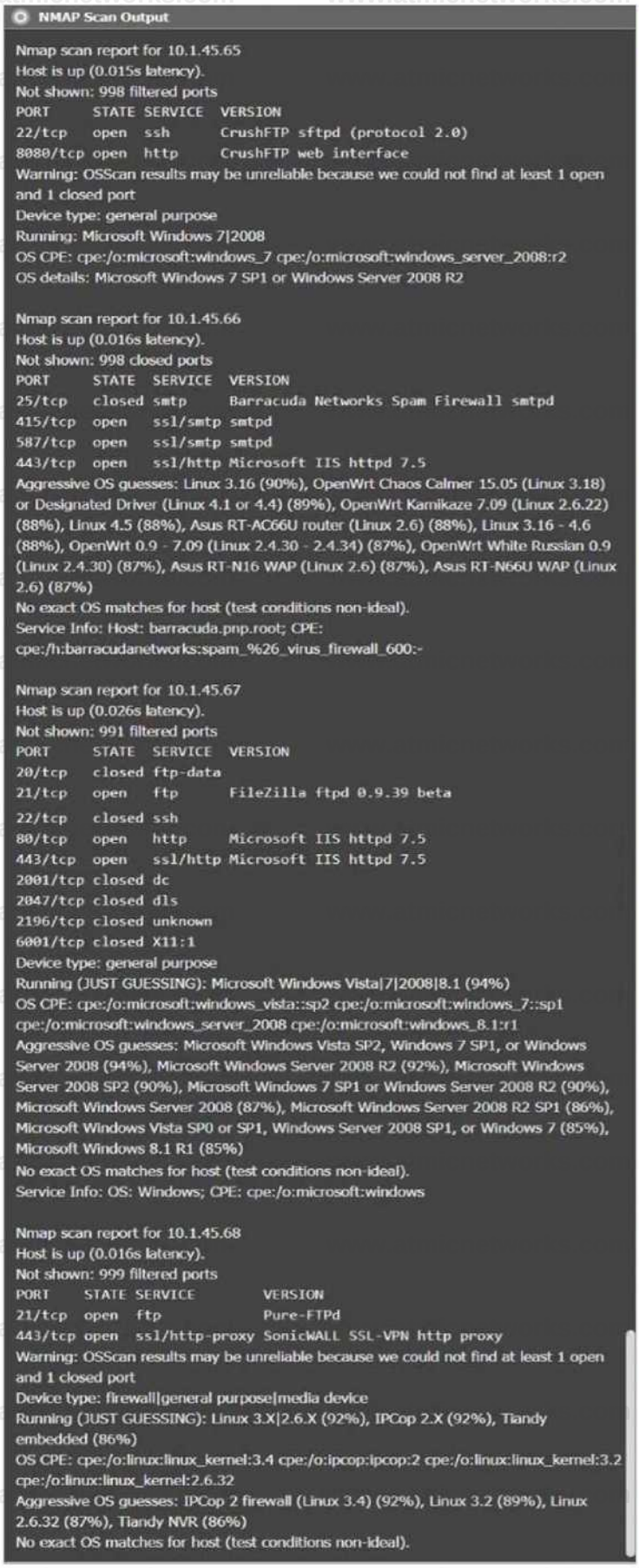
NMAP Scan Output

```
Nmap scan report for 10.1.45.65
Host is up (0.015s latency).
Not shown: 998 filtered ports
PORT     STATE SERVICE  VERSION
22/tcp   open  ssh      CrushFTP sftpd (protocol 2.0)
8080/tcp open  http     CrushFTP web interface
Warning: OSScan results may be unreliable because we could not find at least 1 open
and 1 closed port
Device type: general purpose
Running: Microsoft Windows 7|2008
OS CPE: cpe:/o:microsoft:windows_7 cpe:/o:microsoft:windows_server_2008:r2
OS details: Microsoft Windows 7 SP1 or Windows Server 2008 R2

Nmap scan report for 10.1.45.66
Host is up (0.016s latency).
Not shown: 998 closed ports
PORT     STATE  SERVICE  VERSION
25/tcp   closed smtp     Barracuda Networks Spam Firewall smtpd
415/tcp  open   ssl/smtp smtpd
587/tcp  open   ssl/smtp smtpd
443/tcp  open   ssl/http Microsoft IIS httpd 7.5
Aggressive OS guesses: Linux 3.16 (90%), OpenWrt Chaos Calmer 15.05 (Linux 3.18)
or Designated Driver (Linux 4.1 or 4.4) (89%), OpenWrt Kamikaze 7.09 (Linux 2.6.22)
(88%), Linux 4.5 (88%), Asus RT-AC66U router (Linux 2.6) (88%), Linux 3.16 - 4.6
(88%), OpenWrt 0.9 - 7.09 (Linux 2.4.30 - 2.4.34) (87%), OpenWrt White Russian 0.9
(Linux 2.4.30) (87%), Asus RT-N16 WAP (Linux 2.6) (87%), Asus RT-N66U WAP (Linux
2.6) (87%)
No exact OS matches for host (test conditions non-ideal).
Service Info: Host: barracuda.pnp.root; CPE:
cpe:/h:barracudanetworks:spam_%26_virus_firewall_600:-

Nmap scan report for 10.1.45.67
Host is up (0.026s latency).
Not shown: 991 filtered ports
PORT     STATE  SERVICE  VERSION
20/tcp   closed ftp-data
21/tcp   open   ftp      FileZilla ftpd 0.9.39 beta
22/tcp   closed ssh
80/tcp   open   http     Microsoft IIS httpd 7.5
443/tcp  open   ssl/http Microsoft IIS httpd 7.5
2001/tcp closed dc
2047/tcp closed dls
2196/tcp closed unknown
6001/tcp closed X11:1
Device type: general purpose
Running (JUST GUESSING): Microsoft Windows Vista|7|2008|8.1 (94%)
OS CPE: cpe:/o:microsoft:windows_vista::sp2 cpe:/o:microsoft:windows_7::sp1
cpe:/o:microsoft:windows_server_2008 cpe:/o:microsoft:windows_8.1:r1
Aggressive OS guesses: Microsoft Windows Vista SP2, Windows 7 SP1, or Windows
Server 2008 (94%), Microsoft Windows Server 2008 R2 (92%), Microsoft Windows
Server 2008 SP2 (90%), Microsoft Windows 7 SP1 or Windows Server 2008 R2 (90%),
Microsoft Windows Server 2008 (87%), Microsoft Windows Server 2008 R2 SP1 (86%),
Microsoft Windows Vista SP0 or SP1, Windows Server 2008 SP1, or Windows 7 (85%),
Microsoft Windows 8.1 R1 (85%)
No exact OS matches for host (test conditions non-ideal).
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows

Nmap scan report for 10.1.45.68
Host is up (0.016s latency).
Not shown: 999 filtered ports
PORT    STATE SERVICE        VERSION
21/tcp  open  ftp            Pure-FTPd
443/tcp open  ssl/http-proxy SonicWALL SSL-VPN http proxy
Warning: OSScan results may be unreliable because we could not find at least 1 open
and 1 closed port
Device type: firewall|general purpose|media device
Running (JUST GUESSING): Linux 3.X|2.6.X (92%), IPCop 2.X (92%), Tiandy
embedded (86%)
OS CPE: cpe:/o:linux:linux_kernel:3.4 cpe:/o:ipcop:ipcop:2 cpe:/o:linux:linux_kernel:3.2
cpe:/o:linux:linux_kernel:2.6.32
Aggressive OS guesses: IPCop 2 firewall (Linux 3.4) (92%), Linux 3.2 (89%), Linux
2.6.32 (87%), Tiandy NVR (86%)
No exact OS matches for host (test conditions non-ideal).
```

Devices Discovered (0)

Add Device For

- 10.1.45.65
- 10.1.45.66
- 10.1.45.67
- 10.1.45.68


NMAP Scan Output
Nmap scan report for 10.1.45.65
Host is up (0.015s latency).
Not shown: 998 filtered ports
PORT STATE SERVICE VERSION
22/tcp open ssh CrushFTP sftpd (protocol 2.0)
8080/tcp open http CrushFTP web interface
Warning: OSScan results may be unreliable because we could not find at least 1 open and 1 closed port
Device type: general purpose
Running: Microsoft Windows 7|2008
OS CPE: cpe:/o:microsoft:windows_7 cpe:/o:microsoft:windows_server_2008:r2
OS details: Microsoft Windows 7 SP1 or Windows Server 2008 R2
Nmap scan report for 10.1.45.66
Host is up (0.016s latency).
Not shown: 998 closed ports
PORT STATE SERVICE VERSION
25/tcp closed smtp Barracuda Networks Spam Firewall smtpd
415/tcp open ssl/smtp smtpd
587/tcp open ssl/smtp smtpd
443/tcp open ssl/http Microsoft IIS httpd 7.5
Aggressive OS guesses: Linux 3.16 (90%), OpenWrt Chaos Calmer 15.05 (Linux 3.18) or Designated Driver (Linux 4.1 or 4.4) (89%), OpenWrt Kamikaze 7.09 (Linux 2.6.22) (88%), Linux 4.5 (88%), Asus RT-AC66U router (Linux 2.6) (88%), Linux 3.16 - 4.6 (88%), OpenWrt 0.9 - 7.09 (Linux 2.4.30 - 2.4.34) (87%), OpenWrt White Russian 0.9 (Linux 2.4.30) (87%), Asus RT-N16 WAP (Linux 2.6) (87%), Asus RT-N66U WAP (Linux 2.6) (87%)
No exact OS matches for host (test conditions non-ideal).
Service Info: Host: barracuda.pnp.root; CPE: cpe:/h:barracudanetworks:spam_%26_virus_firewall_600:-
Nmap scan report for 10.1.45.67
Host is up (0.026s latency).
Not shown: 991 filtered ports
PORT STATE SERVICE VERSION
20/tcp closed ftp-data
21/tcp open ftp FileZilla ftpd 0.9.39 beta
22/tcp closed ssh
80/tcp open http Microsoft IIS httpd 7.5
443/tcp open ssl/http Microsoft IIS httpd 7.5
2001/tcp closed dc
2047/tcp closed dls
2196/tcp closed unknown
6001/tcp closed X11:1
Device type: general purpose
Running (JUST GUESSING): Microsoft Windows Vista|7|2008|8.1 (94%)
OS CPE: cpe:/o:microsoft:windows_vista::sp2 cpe:/o:microsoft:windows_7::sp1 cpe:/o:microsoft:windows_server_2008 cpe:/o:microsoft:windows_8.1:r1
Aggressive OS guesses: Microsoft Windows Vista SP2, Windows 7 SP1, or Windows Server 2008 (94%), Microsoft Windows Server 2008 R2 (92%), Microsoft Windows Server 2008 SP2 (90%), Microsoft Windows 7 SP1 or Windows Server 2008 R2 (90%), Microsoft Windows Server 2008 (87%), Microsoft Windows Server 2008 R2 SP1 (86%), Microsoft Windows Vista SP0 or SP1, Windows Server 2008 SP1, or Windows 7 (85%), Microsoft Windows 8.1 R1 (85%)
No exact OS matches for host (test conditions non-ideal).
Service Info: OS: Windows; CPE: cpe:/o:microsoft:windows
Nmap scan report for 10.1.45.68
Host is up (0.016s latency).
Not shown: 999 filtered ports
PORT STATE SERVICE VERSION
21/tcp open ftp Pure-FTPd
443/tcp open ssl/http-proxy SonicWALL SSL-VPN http proxy
Warning: OSScan results may be unreliable because we could not find at least 1 open and 1 closed port
Device type: firewall|general purpose|media device
Running (JUST GUESSING): Linux 3.X|2.6.X (92%), IPCop 2.X (92%), Tiandy embedded (86%)
OS CPE: cpe:/o:linux:linux_kernel:3.4 cpe:/o:ipcop:ipcop:2 cpe:/o:linux:linux_kernel:3.2 cpe:/o:linux:linux_kernel:2.6.32
Aggressive OS guesses: IPCop 2 firewall (Linux 3.4) (92%), Linux 3.2 (89%), Linux 2.6.32 (87%), Tiandy NVR (86%)
No exact OS matches for host (test conditions non-ideal).


Devices Discovered (1)
Add Device For
10.1.45.66
IP Address
10.1.45.65
Role
SFTP Server
Email Server
FTP Server
UTM Appliance
Web Server
Database Server
AD Server
Disable Protocols
20/tcp
21/tcp
22/tcp
25/tcp
80/tcp
415/tcp
443/tcp
8080/tcp

Answer: See

explanation below.

Explanation:

10.1.45.65 SFTP ServerDisable 8080
10.1.45.66 Email Server Disable 415 and 443
10.1.45.67 Web Server Disable 21, 80
10.1.45.68 UTM Appliance Disable 21

Question: 111

SIMULATION
[Identity and Access Management (IAM)]

A product development team has submitted code snippets for review prior to release.

INSTRUCTIONS

Analyze the code snippets, and then select one vulnerability, and one fix for each code snippet.

Code Snippet 1

Code Snippet 1 Code Snippet 2

Web browser:
URL: https://cowptia. org/profiles/userdetails?uscrid=163

Web server code:

```
String actourttQitfry ■ ''SELECT * iron uteri WHERE userid = ?*;
Prep aredSta taunt stat - tenner tian, prepares La taunt( at CpontQuery);
stilt. setString(l, r^ueit-gutPdrdmeier^'uieritr*});
Result Set queryAeaponse          stat ~ eHecvteQuery () ;
```

Code Snippet 2

Caller:
URL: https://comptia,org/api/userprofile?userid=103

API endpoint (/searchDirectory): ♦ * ♦ import subprocess from http,server import HTTPServer, BaseHTTPRequestHandler httpd = HnPServer((1192.168.0.5J 8443), BaseHTTPRequestHandler) httpd.

```
serve_forever()


def getrequest(request):
    userid - request.getParom(userid)

    ldapLookup = 'ldapsearch 0 "cn-f ♦ userid ♦ "" -W p 389 -h loginserver.comptia.org -b "dc-
                                        comptia,dc=orgu -s sub -x "(objectclass^*)"'
    accountLookup       subproccss.popen(ldapLookup)


    if (userExists(accountlookup)) account Found - true else accountround - false
```

Vulnerability 1:
SQL injection
Cross-site request forgery
Server-side request forgery Indirect object reference
Cross-site scripting

Fix 1:

Perform input sanitization of the userid field. Perform output encoding of queryResponse, Ensure usex:ia belongs to logged-in user. Inspect URLS and disallow arbitrary requests. Implementanti-forgery tokens.

Vulnerability 2

1) Denial of service
2) Command injection
3) SQL injection
4) Authorization bypass
5) Credentials passed via GET

Fix 2

A) Implement prepared statements and bind variables.
B) Remove the serve_forever instruction.

C) Prevent the "authenticated" value from being overridden by a GET parameter.

D) HTTP POST should be used for sensitive parameters.

E) Perform input sanitization of the userid field.

Answer: See the solution below in explanation.

Explanation:

Code Snippet 1

Vulnerability 1: SQL injection

SQL injection is a type of attack that exploits a vulnerability in the code that interacts with a database. An attacker can inject malicious SQL commands into the input fields, such as username or password, and execute them on the database server. This can result in data theft, data corruption, or unauthorized access.

Fix 1: Perform input sanitization of the userid field.

Input sanitization is a technique that prevents SQL injection byvalidating and filtering the user input values before passing them to the database. The input sanitization should remove any special characters, such as quotes, semicolons, or dashes, that can alter the intended SQL query.

Alternatively, the input sanitization can use a whitelist of allowed values and reject any other values.

Code Snippet 2

Vulnerability 2: Cross-site request forgery

Cross-site request forgery (CSRF) is a type of attack that exploits a vulnerability in the code that handles web requests. An attacker can trick a user into sending a malicious web request to a server that performs an action on behalf of the user, such as changing their password, transferring funds, or

deleting dat

a. This can result in unauthorized actions, data loss, or account compromise.

Fix 2: Implement anti-forgery tokens.

Anti-forgery tokens are techniques that prevent CSRF by adding a unique and secret value to each web request that is generated by the server and verified by the server before performing the action. The anti-forgery token should be different for each user and each session, and should not be predictable or reusable by an attacker. This way, only legitimate web requests from the user's browser can be accepted by the server.

Question: 112

SIMULATION

[Security Architecture]

A security engineer needs to review the configurations of several devices on the network to meet the following requirements:

- The PostgreSQL server must only allow connectivity in the 10.1.2.0/24

subnet.

- The SSH daemon on the database server must be configured to listen

to port 4022.

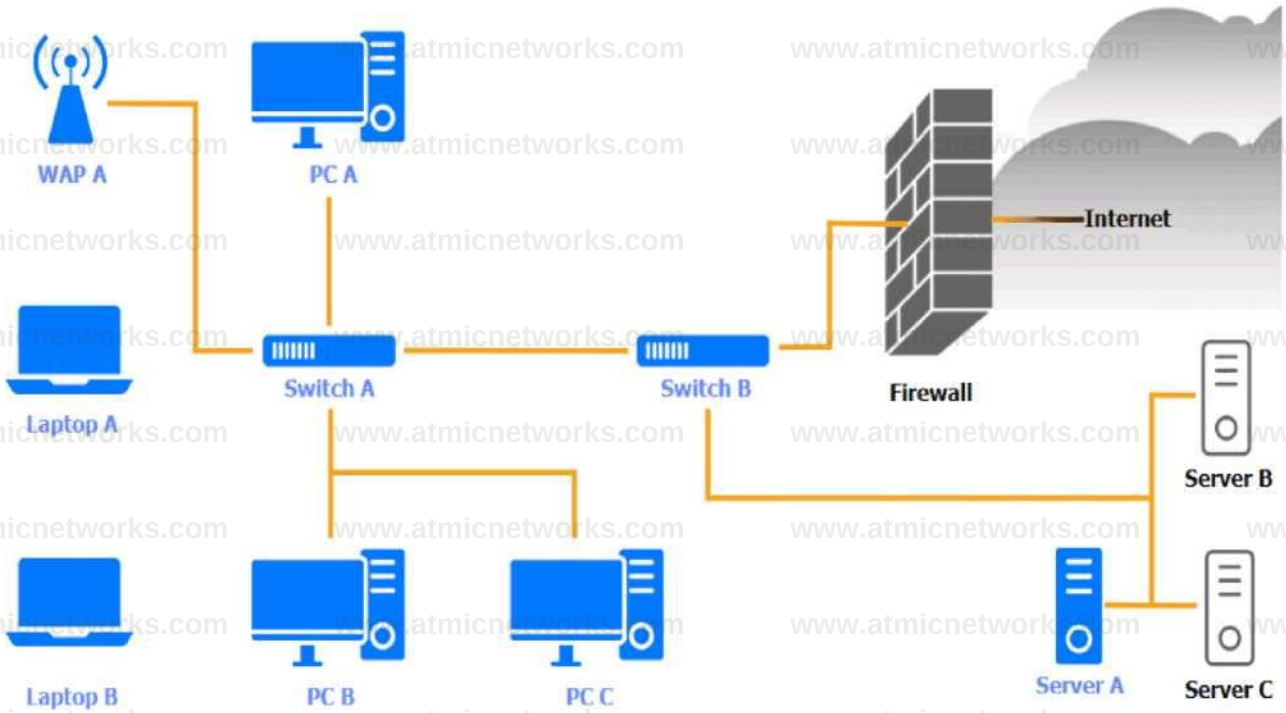
- The SSH daemon must only accept connections from a Single workstation.
- All host-based firewalls must be disabled on all workstations.
- All devices must have the latest updates from within the past eight days.
- All HDDs must be configured to secure data at rest.
- Cleartext services are not allowed.
- All devices must be hardened when possible.

Instructions:

Click on the various workstations and network devices to review the posture assessment results.

Remediate any possible issues or indicate that no issue is found.

Click on Server A to review output data. Select commands in the appropriate tab to remediate connectivity problems to the pOSTGREsql DATABASE VIA ssh


WAP A
PC A
Internet
Laptop A
Switch A
Switch B
Firewall
Server B
Laptop B
PC B
PC C
Server A
Server C

WAP A

WAP A

I Finding	Status	Remediation
Firmware	Updated 5 days ago	Q No issue
Top 5 used ports	22, 80,443,123, 53	☐ Patch management
SSID broadcast	Disabled	☐ Update endpoint protection
Default admm account	Default password has been changed	☐ Enabled disk encryption
HTTP server	Disabled	☐ Enable port securin' on network device
		☐ Enable password complexity
		☐ Enable host-based firewall to block all traffic
		☐ Antivirus scan
		☐ Change default administrative password
		☐ Disable unneeded sen ices
		☐ Enable all connectivity settings

PC A


PC A
OS updates
Updated 2 days ago, last checked 5:08 a.m.
Endpoint protection
Last checked 6:11 a.m.
Browser version
91.2.5 (7/31/2023)
Disk encryption
Enabled
Password complexity
Enabled
Host-based firewall
Disabled
CPU & memory usage
Normal
Screensaver
Enabled
Top 5 used ports
22, 80, 443, 389, 53
Wireless
Disabled
No issue
Patch management
Update endpoint protection
Enabled disk encryption
Enable port security on network device
Enable password complexity
Enable host-based firewall to block all traffic
Antivirus scan
Change default administrative password
Disable unneeded services
Enable all connectivity settings

Laptop A

Laptop A

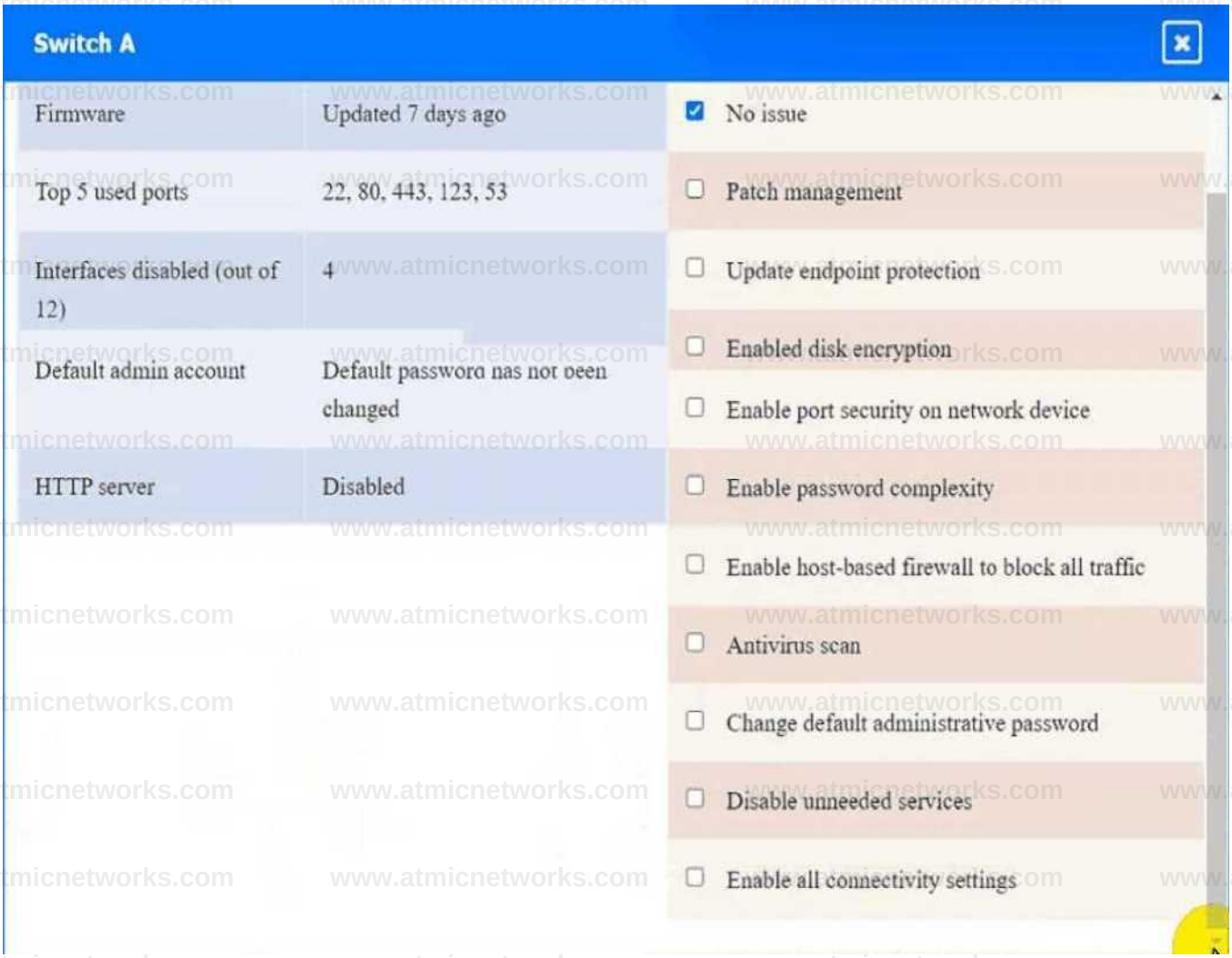
S

A

OS updates	Updated 3 days ago. last checked 6:08 a.in.	Q No issue
Endpoint protection	Last checked in 6:13 a.m.	0 Patch management
Browser version	91.2.5 (7 31 2023)	0 Update endpoint protection
Disk encrvotion	r—uuj	0 Enabled disk encryption
Password complexity	Enabled	[1] Enable port security on network device
	Disabled	□ Enable password complexity Host-based firewall
CPU & memory usage	Medium	[1] Enable host-based firewall to block all traffic
Screensaver	Enabled	□ Antivirus scan
Top 5 used ports	22.80.443.389. 53	0 Change default administrative password
Wireless	Enabled	D Disable unneeded services
		□ Enable ail connectivity settings

$

Switch A


Switch A
Firmware
Updated 7 days ago
No issue
Top 5 used ports
22, 80, 443, 123, 53
Patch management
Interfaces disabled (out of 12)
4
Update endpoint protection
Default admin account
Default password has not been changed
Enabled disk encryption
Enable port security on network device
HTTP server
Disabled
Enable password complexity
Enable host-based firewall to block all traffic
Antivirus scan
Change default administrative password
Disable unneeded services
Enable all connectivity settings

Switch B:

Switch B _X_

Firmware	Updated 7 days ago	Q	No issue *
Top 5 used ports	22. SO. 443. 123.53	n	Patch management
Interfaces disabled (out of 6)	1	0	Update endpoint protection
		0	Enabled disk encryption
Default admin account	Default password has been changed	Q	Enable port security on network device
HTTP server	Disabled	□	Enable password complex in-
		0	Enable host-based firewall to block all traffic
		0	Antivirus scan
		0	Change default administrative password
		□	Disable unneeded sen-ices
		□	Enable all connectivity settings

Laptop B

Laptop B

OS updates	Updated 3 days ago. last checked S:08 a.m.
Endpoint protection	Last checked in 8:11 a.m.
Browser version	81.2.5 (7731 20231
Disk encryption	Disabled
Password Complexity	Enabled
Host-based firewall	Disabled
CPU & memory usage	Normal
Screensaver	Enabled
Top 5 used ports	22. 80. 443. 8080. 53
Wireless	Enabled

Q No issue

□ Patch management

0 Update endpoint protection

□ Enabled disk encryption

□ Enable port security on network device

□ Enable password complexity

Enable host-based firewall to block all traffic

0 Antivirus scan

□ Change default administrative password

□ Disable unneeded services

□ Enable all connectivity settings

PC B

PCB 0

OS updates	Updated 2 days ago, last checked 5:10 a.m.	Q No issue
Endpoint protection	Last checked in 6:13 a.m.	0 Patch management
Browser version	91.2.5 (7 31 2023)	Update endpoint protection
Disk encryption	Enabled	□ Enabled disk encryption
complexity	Enabled	0 Enable port security on network device Password
firewall	Disabled	□ Enable password complexity Host-based
CPU & memory usage	Medium	0 Enable host-based firewall to block all traffic
Screensaver	Enabled	□ Antivirus scan
Top 5 used ports	22.80.443.389. 53	□ Change default administrative password
Wireless	Disabled	□ Disable unneeded services
		0 Enable all connectivity settings

PC C

PCC		[x]
1	1	
OS updates	Updated 22 days ago	Q No issue
Endpoint protection	Last checked 6:19 a m.	□ Patch management
Browser version	91.2.5(7/182022)	LI Update endpoint protection
Disk encry ption	Enabled	L Enabled disk encryption
Password complexity	Enabled	0 Enable port security on network device
Host-based firewall	Disabled	□ Enable password complexity
CPU & memory usage	High	Enable host-based firewall to block all traffic
Screensaver	Enabled	LI Antivirus scan
Top 5 used ports	22. 80.443.23. 53	0 Change default administrative password
Wireless	Disabled	LI Disable unneeded services

J Enable all connectivity settings

Server A

Server A

Nmap | IP Tables

```
Nmap scan report for psql-srvr.acme.com
Host is up, received arp-response (0.00040s latency).
```

PORT	STATE	SERVICE	VERSION
22/tcp	open	ssh	OpenSSH 8.4
80/tcp	closed	http	
443/tcp	closed	ssl/http	
1433/tcp	closed	mssql	
5432/tcp	closed	postgresql	

```
iptables -R INPUT 1 -p tcp -s 10.1.2.25/32 —sport 4022 -j ACCEPT
iptables -D OUTPUT 1
iptables -A OUTPUT -p udp -d 0/0 -s 10.1.2.0/24 —sport 5432 -m state —state ESTABLISHED -j ACCEPT
iptables -A INPUT -p tcp -d 0/0 -s 10.1.2.0/24 —dport 5432 -m state —state NEW,ESTABLISHED -j ACCEPT
```

1 2 3 4

```
iptables -R INPUT 1 -p tcp -s 10.1.2.0/24 --dport 4022 -j ACCEPT
iptables -D OUTPUT 2
iptables -A OUTPUT -p tcp -d 0/0 -s 10.1.2.0/24 --sport 5432 -m state --state ESTABLISHED -j ACCEPT
iptables -A INPUT -p tcp -d 0/0 -s 10.1.2.0/24 --dport 5432 -m state --state NEW,ESTABLISHED -j ACCEPT
```

1234

```
I iptables -R OUTPUT 1 -p tcp -a 10.1.2.25/32 —apart 4022 -j ACCEPT
I iptables -E OUTPUT
I iptables -A OUTPUT -p tcp -d 0/0 -s 10.1.2.0/24 —sport 5432 -a state —state ESTABLISHED -j ACCEPT
I iptables -A INPUT -p tcp -d 0/0 -a 10.1.2.0/24 —dport 5432 -m state —state NEW, ESTABLISHED -j ACCEPT I
```

1 2 3 4

```
iptables -R INPUT 1 -p tcp -s 10.1.2.25/32 —dport 4022 -j ACCEPT
iptables -D OUTPUT 1
iptables -A OUTPUT -p tcp -d 0/0 -s 10.1.2.0/24 —sport 5432 -m state —state ESTABLISHED -j ACCEPT
iptables -A INPUT -p tcp -d 0/0 -s 10.1.2.0/24 —dport 5432 -m state —state NEW,ESTABLISHED -j ACCEPT
```

Nmap IP Tables

```
tiptables —list —verbose
```

```
Chain INPUT (policy DROP 5 packets, 341 bytes)

pkts bytes target prot opt in out source destination

0 0 ACCEPT tcp — any any anywhere anywhere tcp spta:login:65535 dpt:ash state NEW,ESTABLISHED

1 28 DROP all — any any anywhere anywhere


Chain FORWARD (policy DROP 0 packets, 0 bytes)
```

Answer: See the Explanation below for the solution.

Explanation:

WAP A: No issue found. The WAP A is configured correctly and meets therequirements.

PC A = Enable host-based firewall to block all traffic

This option will turn off the host-based firewall and allow all traffic to pass through. This will comply with the requirement and also improve the connectivity of PC A to other devices on the network. However, this option will also reduce the security of PC A and make it more vulnerable to attacks. Therefore, it is recommended to use other security measures, such as antivirus, encryption, and password complexity, to protect PC A from potential threats.

Laptop A: Patch management

This option will install the updates that are available for Laptop A and ensure that it has the most recent security patches and bug fixes. This will comply with the requirement and also improve the performance and stability of Laptop A. However, this option may also require a reboot of Laptop A and some downtime during the update process. Therefore, it is recommended to backup any important data and close any open applications before applying the updates.

Switch A: No issue found. The Switch A is configured correctly and meets the requirements. Switch B: No issue found. The Switch B is configured correctly and meets the requirements.

Laptop B: Disable unneeded services

This option will stop and disable the telnet service that is using port 23 on Laptop B. Telnet is a cleartext service that transmits data in plain text over the network, which exposes it to eavesdropping, interception, and modification by attackers. By disabling the telnet service, you will comply with the requirement and also improve the security of Laptop B. However, this option may

also affect the functionality of Laptop B if it needs to use telnet for remote administration or other purposes. Therefore,it is recommended to use a secure alternative to telnet, such as SSH or HTTPS, that encrypts the data in transit.

PC B: Enable disk encryption

This option will encrypt the HDD of PC B using a tool such as BitLocker or VeraCrypt. Disk encryption is a technique that protects data at rest by converting it into an unreadable format that can only be decrypted with a valid key or password. By enabling disk encryption, you will comply with the requirement and also improve the confidentiality and integrity of

PC B's data. However, this option may also affect the performance and usability of PC B, as it requires additional processing time and user authentication to access the encrypted data. Therefore, it is recommended to backup any important data and choose a strong key or password before encrypting the disk.

PC C: Disable unneeded services

This option will stop and disable the SSH daemon that is using port 22 on PC C. SSH is a secure service that allows remote access and command execution over an encrypted channel. However, port 22 is thedefault and well-known port for SSH, which makes it a common target for brute-force attacks and port scanning. By disabling the SSH daemon on port 22, you will comply with the requirement and also improve the security of PC C. However, this option may also affect the functionality of PC C if it needs to use SSH for remote administration or other purposes. Therefore, it is recommended to enable the SSH daemon on a different port, such as 4022, by editing the configuration file using the following command:

sudo nano /etc/ssh/sshd_config

Server A. Need to select the following:

A black and white screen with white text Description automatically generated

Question: 113

SIMULATION
[Security Engineering and Cryptography]

An IPSec solution is being deployed. The configuration files for both the VPN concentrator and the AAA server are shown in the diagram.

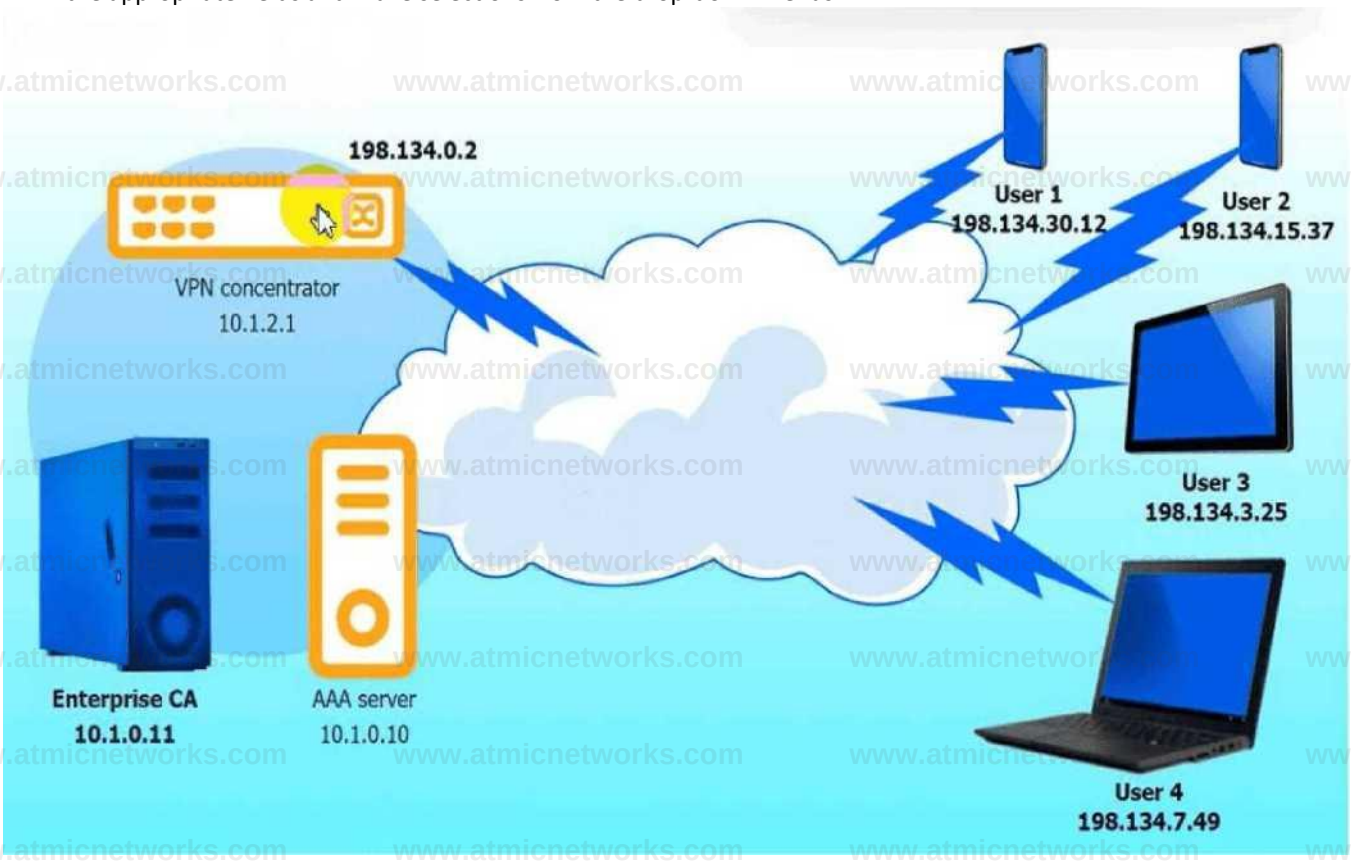
Complete the configuration files to meet the following requirements:

- The EAP method must use mutual certificate-based authentication (With issued client certificates).
- The IKEv2 Cipher suite must be configured to the MOST secure authenticated mode of operation,
- The secret must contain at least one uppercase character, one lowercase character, one numeric character, and one special character, and it must meet a minimumlength requirement of eight characters,

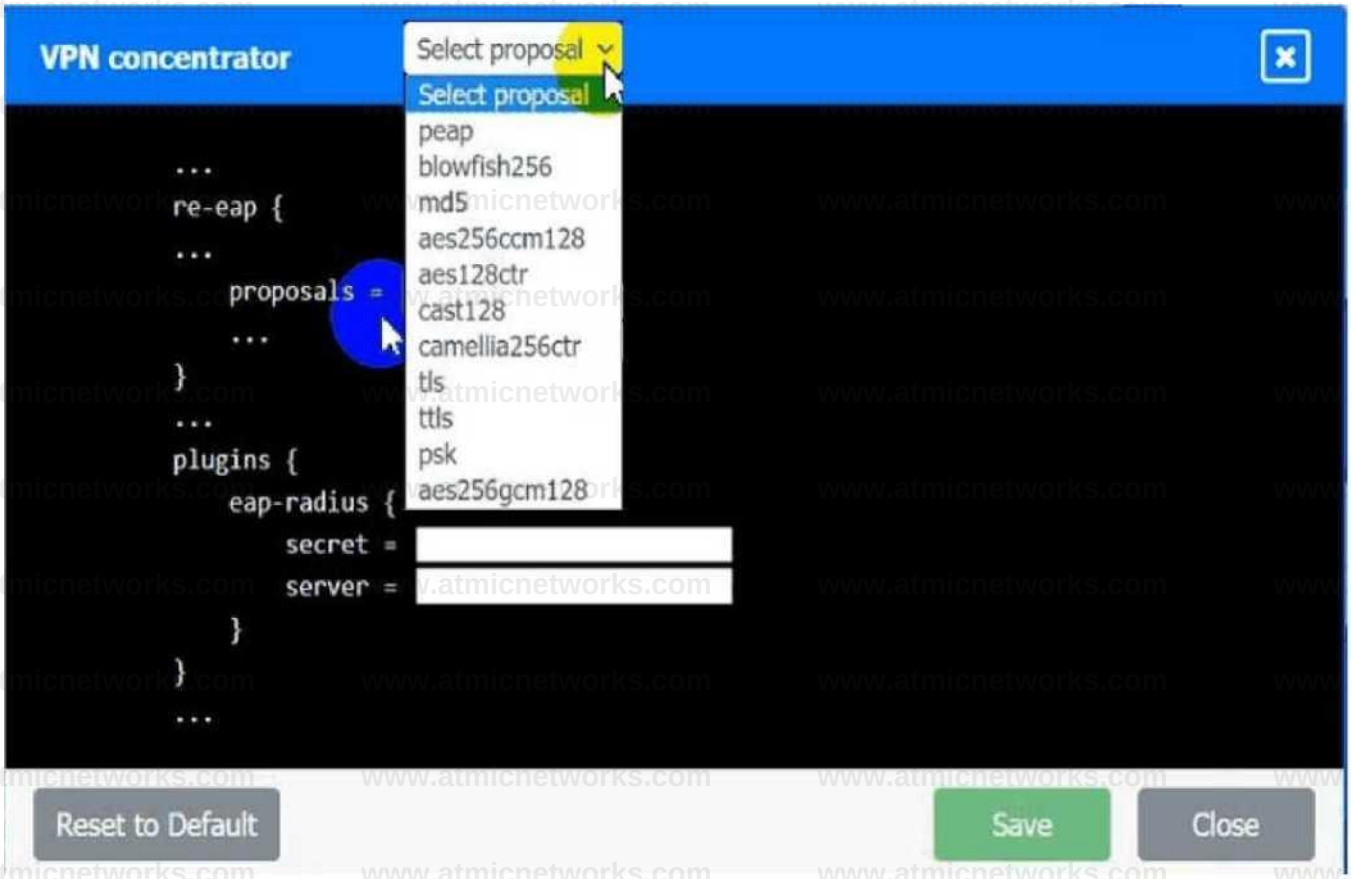
INSTRUCTIONS

Click on the AAA server and VPN concentrator to complete the configuration.

Fill in the appropriate fields and make selections from the drop-down menus.



VPN Concentrator:



AAA Server:

Answer: See the

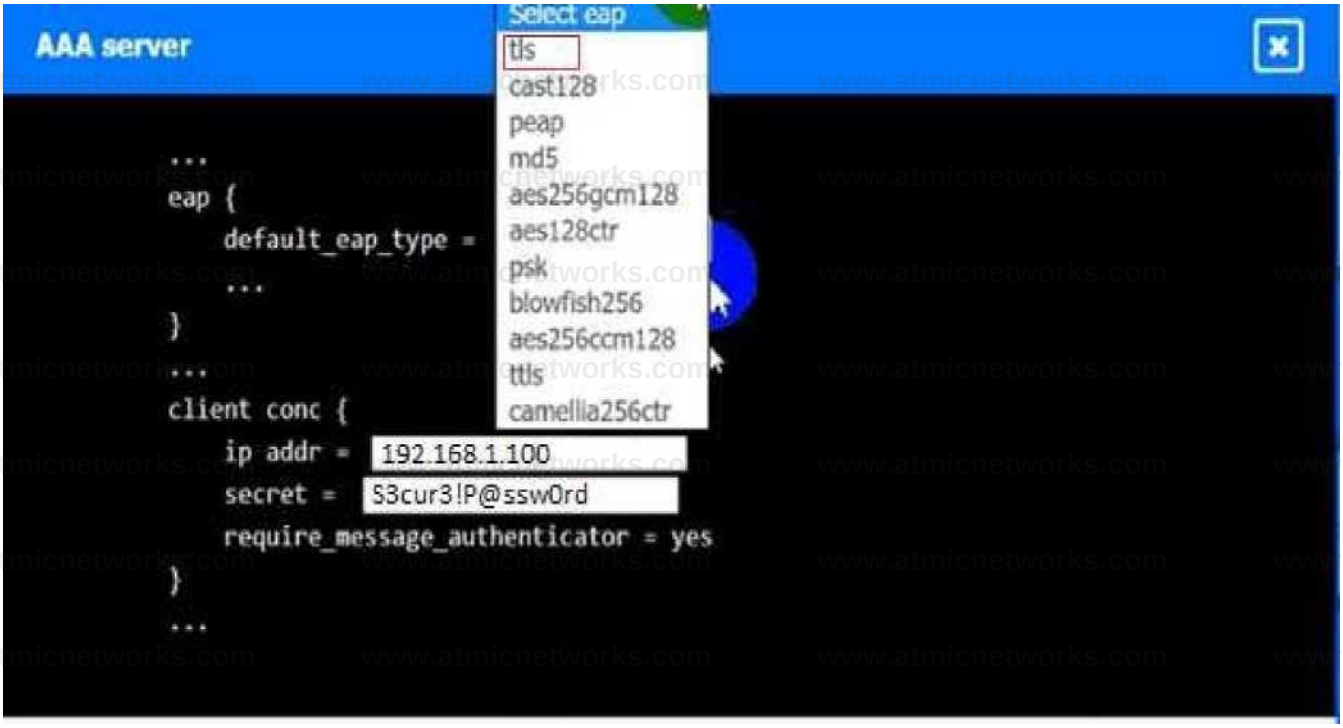
answer below in Explanation.

Explanation:

VPN Concentrator:

A screenshot of a computer Description automatically generated

AAA Server:

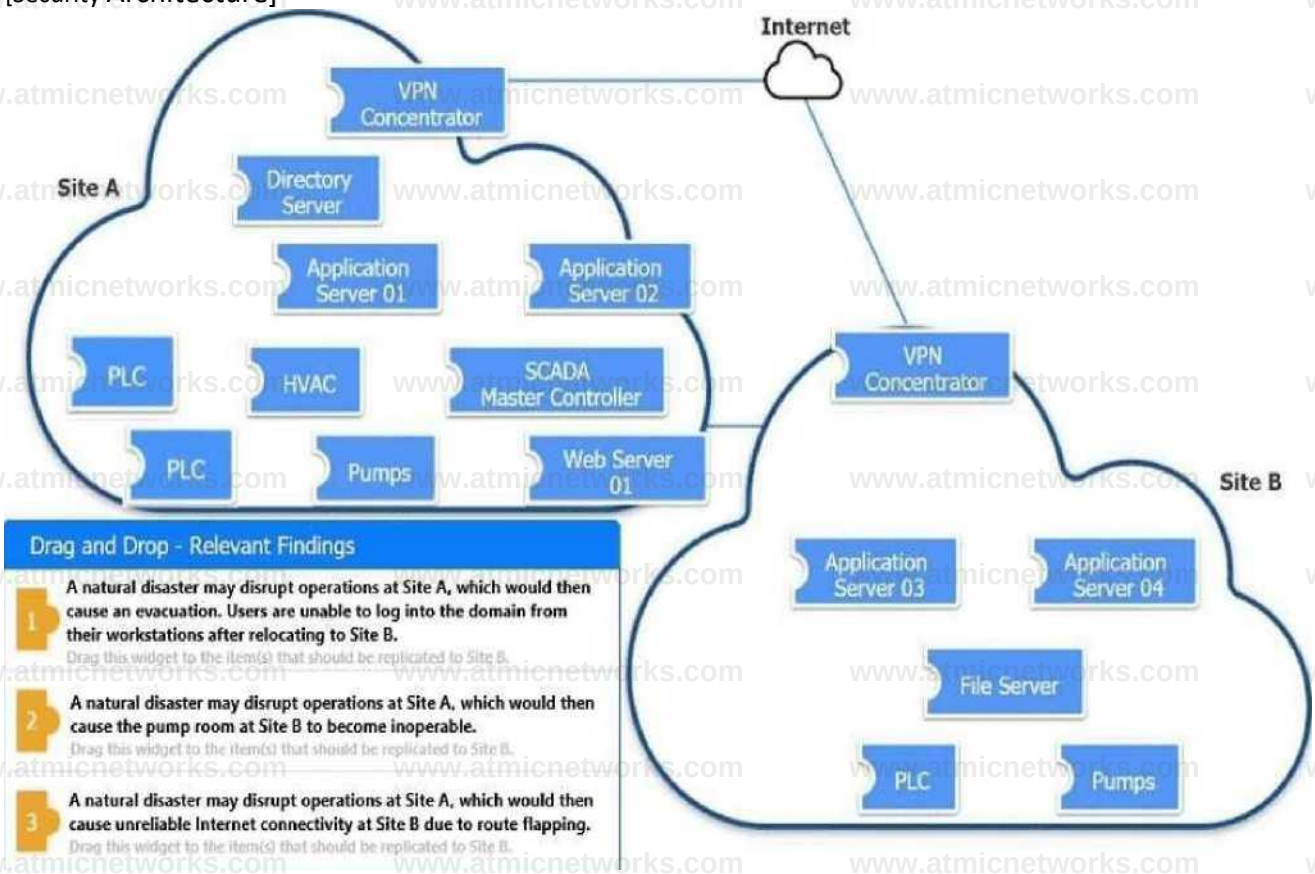


A screenshot of a computer Description automatically generated

Question: 114

DRAG DROP

[Security Architecture]



An organization is planning for disaster recovery and continuity of operations. INSTRUCTIONS

Review the following scenarios and instructions. Match each relevant finding to the affected host.

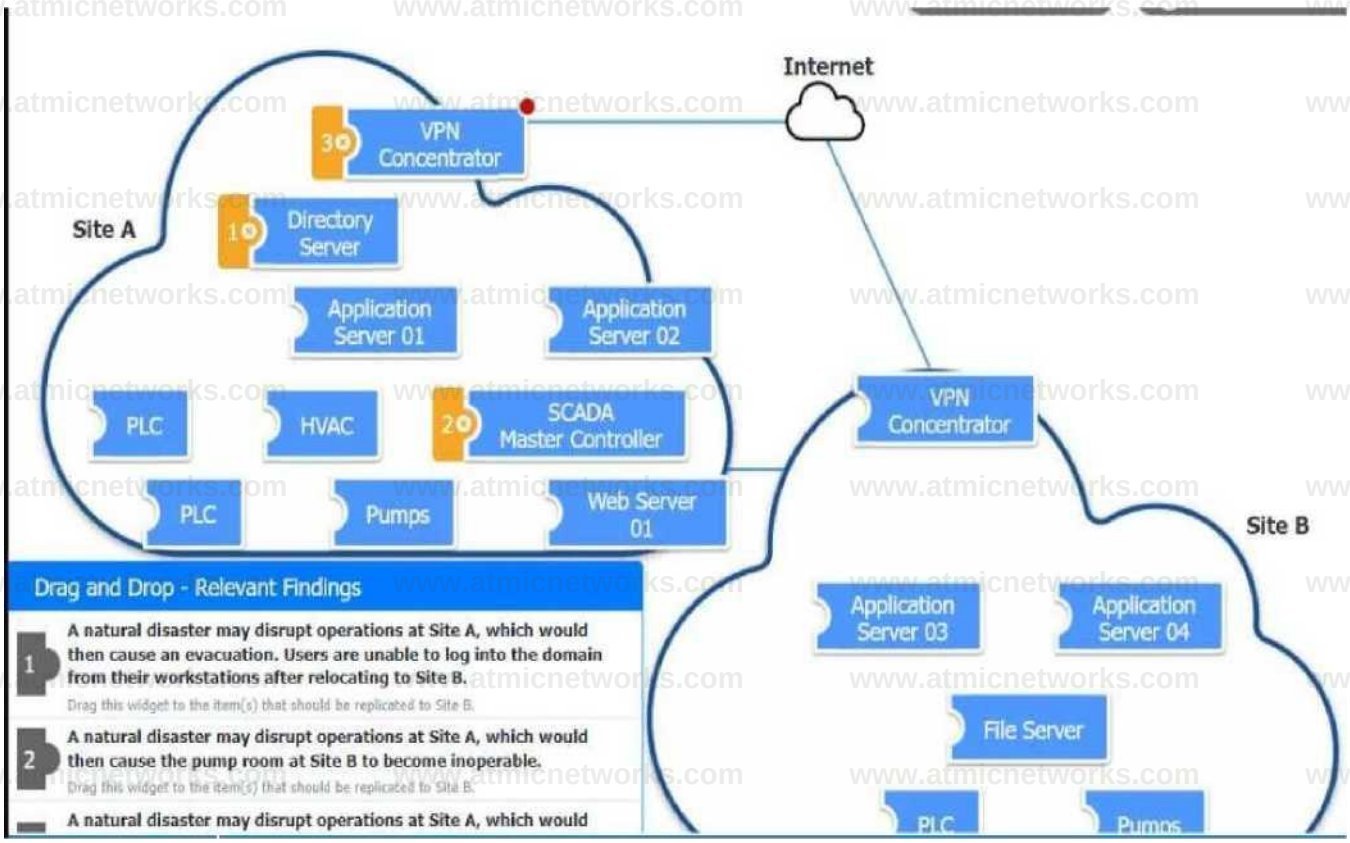
After associating scenario 3 with the appropriate host(s), click the host to select the appropriate corrective action for that finding.

Each finding may be used more than once.

If at any time you would like to bring back the initial state of the simul-ation, please click the Reset All button.

Answer:

Explanation:



A computer screen shot of a diagram Description automatically generated

Arriinnl 6 waterway disrupt nppfnrion'; ar Site A, whirh wnuid then cause lihrellable [nrr-mixt connectivity ar Si re Bdue to route fhpfunD-

Corrective Action

Mod fy the BGP corrinirntcn

A screenshot of a computer error Description automatically generated

Question: 115

SIMULATION

[Security Architecture]

An organization is planning for disaster recovery and continuity ofoperations, and has noted the following relevant findings:

1. A natural disaster may disrupt operations at Site A, which would then cause an evacuation. Users are unable to log into the domain from-their workstations after relocating to Site B.
2. A natural disaster may disrupt operations at Site A, which would then cause the pump room at Site B to become inoperable.
3. A natural disaster may disrupt operations at Site A, which would then cause unreliable internet

connectivity at Site B due to route flapping.

INSTRUCTIONS

Match each relevant finding to the affected host by clicking on the host name and selecting the appropriate number.

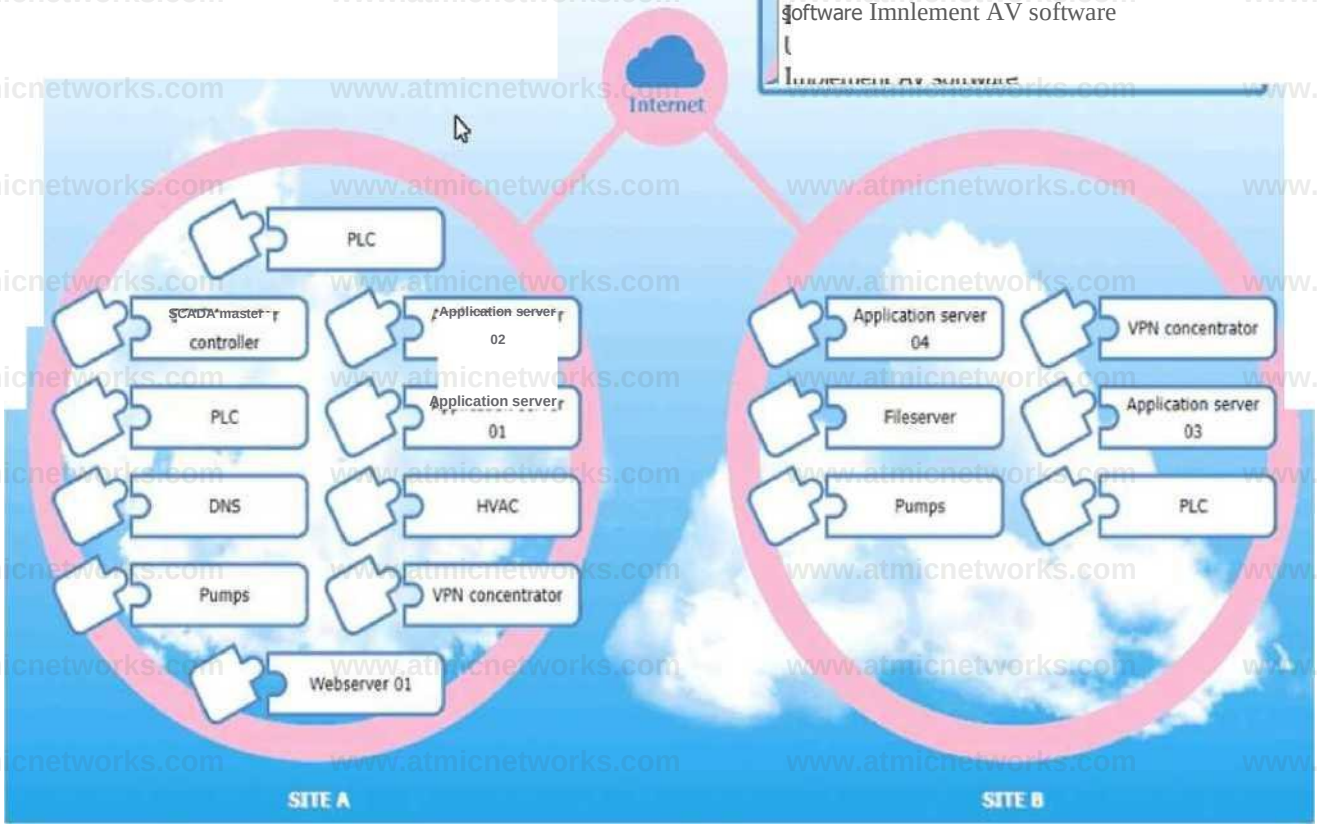
For findings 1 and 2, select the items that should be replicated to Site B. For finding 3, select the item requiring configuration changes, then select the appropriate corrective action from the drop-down menu.

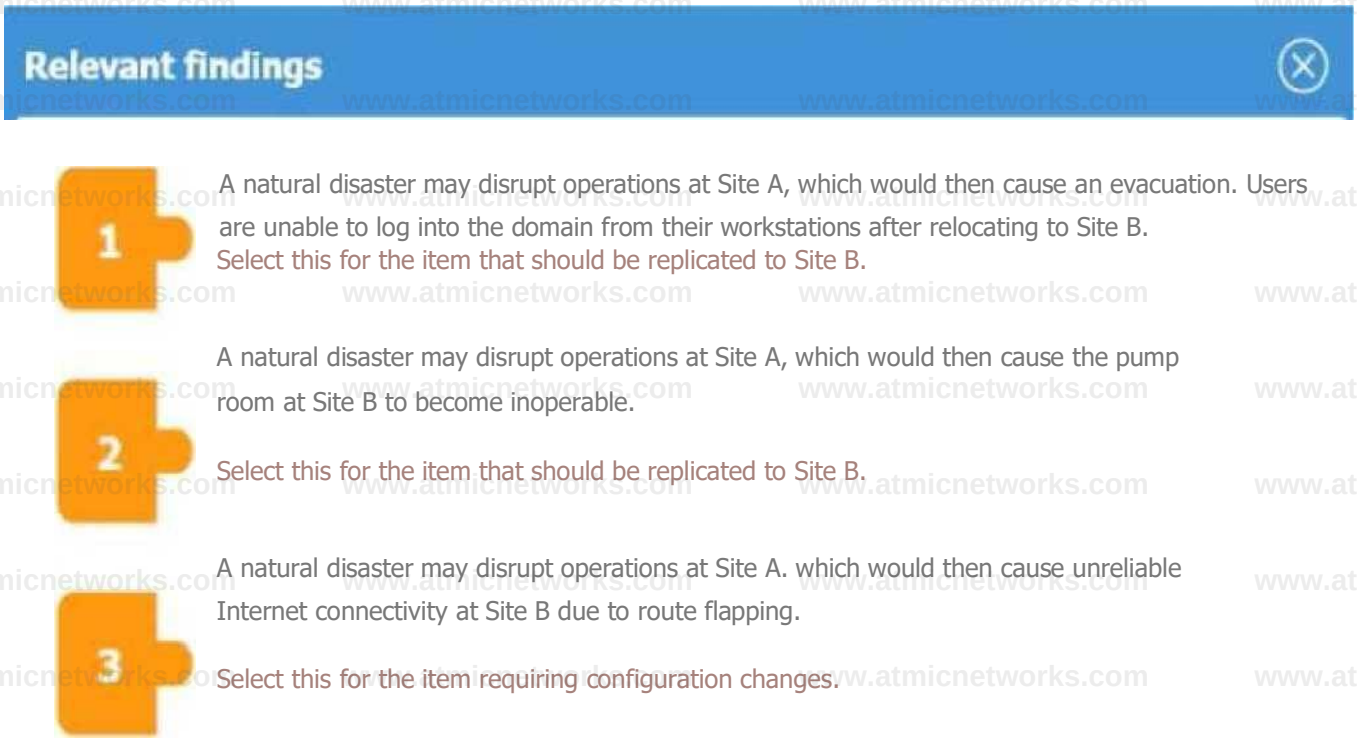
Select the appropriate corrective action for finding 3:

Select corrective action

Select corrective action

Modify the BGP configuration Update the firmware version Integrate a WAF Synchronize the SIEM database Increase the bandwidth at the site Update the SCADA master controller software Implement AV software





Answer: See the complete solution below in

Explanation:

Matching Relevant Findings to the Affected Hosts:

Finding 1:

Affected Host: DNS

Reason: Users are unable to log into the domain from their workstations after relocating to Site B, which implies a failure in domain name services that are critical for user authentication and domain login.

Finding 2:

Affected Host: Pumps

Reason: Thepump room at Site B becoming inoperable directly points to the critical infrastructure components associated with pumping operations.

Finding 3:

Affected Host: VPN Concentrator

Reason: Unreliable internet connectivity at Site B due to route flapping indicates issues with network routing, which is often managed by VPN concentrators that handle site-to-site connectivity.

Corrective Actions for Finding 3:

Finding 3 Corrective Action:

Action: Modify the BGP configuration

Reason: Route flapping is often related to issues with Border Gateway Protocol (BGP) configurations.

Adjusting BGP settings can stabilize routes and improve internet connectivity reliability.

Replication to Site B for Finding 1:

Affected Host: DNS

Domain Name System (DNS) services are essential for translating domain names into IP addresses, allowing users to

log into the network. Replicating DNS services ensures that even if Site A is disrupted, users at Site B can still authenticate and access necessary resources.

Replication to Site B for Finding 2:

Affected Host: Pumps

The operation of the pump room is crucial for maintaining various functions within the infrastructure. Replicating the control systems and configurations for the pumps at Site B ensures that operations can continue smoothly even if Site A is affected.

Configuration Changes for Finding 3:

Affected Host: VPN Concentrator

Route flapping is a situation where routes become unstable, causing frequent changes in the best path for data to travel. This instability can be mitigated by modifying BGP configurations to ensure more stable routing. VPN concentrators, which manage connections between sites, are typically configured with BGP for optimal routing.

Reference:

CompTIA Security+ Study Guide: This guide provides detailed information on disaster recovery and continuity of operations, emphasizing the importance of replicating critical services and making necessary configuration changes to ensure seamless operation during disruptions.

CompTIA Security+ Exam Objectives: These objectives highlight key areas in disaster recovery planning, including the replication of critical services and network configuration adjustments. Disaster Recovery and Business Continuity Planning (DRBCP): This resource outlines best practices for ensuring that operations can continue at an alternate site during a disaster, including the replication of essential services and network stability measures.

By ensuring that critical services like DNS and control systems for pumps are replicated at the alternate site, and by addressing network routing issues through proper BGP configuration, the organization can maintain operational continuity and minimize the impact of natural disasters on their operations.

Question: 116

SIMULATION

[Security Architecture]

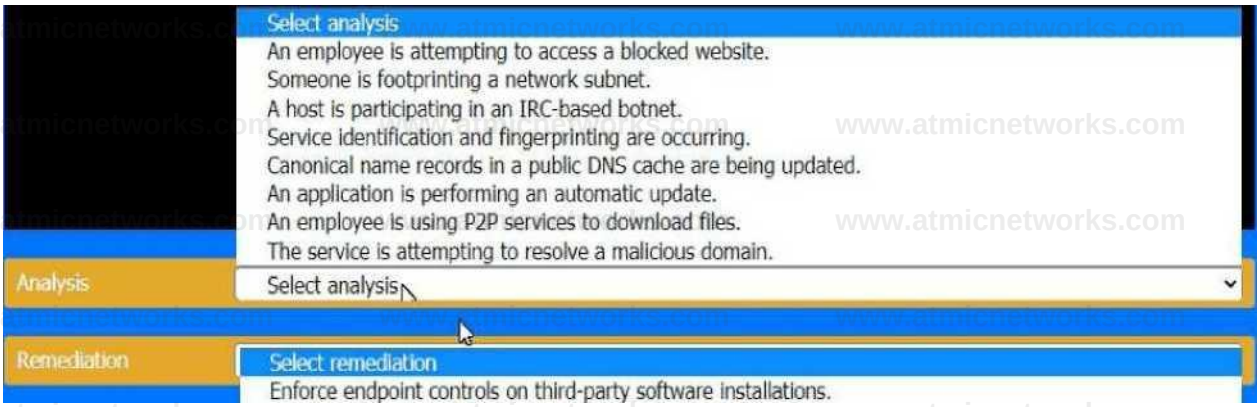
During the course of normal SOC operations, three anomalous events occurred and were flagged as potential IoCs. Evidence for each of these potential IoCs is provided.

INSTRUCTIONS

Review each of the events and select the appropriate analysis and remediation options for each IoC.

IoCl IoC2

Source Svc	Type	De st	Data
Apachehttpd	DN5Q	010.1.1.1:53	update.s.domain
Apachehttpd	ONSQR	010.1,2.5	CNAME 3 al29sk219r051serf kzzz000.s.domain
Apachehttpd	ONSQ	010.1.1.1:53	3«125sk219r0slsmfkzzzeee.s.domain
Apachehttpd	ONSQR	010.1.2.5	IN A 108.153.253.253



Investigate for software supply-chain attacks. Configure the DNS server to perform recursion. Block ping requests across the WAN interface. Deploy a network-based DLP solution.

Implement a blocklist for known malicious ports. No further action is needed.

Select remediation

IoCl

iota

IoC3

Src	Dst	Proto	Data	Action
10.0*5.5	10.1.2.1	IP_ICMP	ECHO	Drop
10,0.5.5	10.1.2.2	IP_ICMP	ECHO	Drop
10.0.5.5	10.1.2.3	IP_ICMP	ECHO	Drop
10,0.5.5	10.1.2.4	IP_ICMP	ECHO	Drop
10,0.5.5	10.1.2.5	IP_ICMP	ECHO	Drop

Select analysis

An employee is attempting to access a blocked website.
Someone is footprinting a network subnet.
A host Is participating in an IRC-based botnet.
Service identification and fingerprinting are occurring.
Canonical name records in a public DNS cache are being updated.
An application is performing an automatic update.
An employee is using P2P services to download flies.
The service is attempting to resolve a malicious domain.

Select analysis

Analysis

Remediation

Select remediation

I Enforce endpoint controls on third-party software installations.

Investigate for software supply-chain attacks. Configure the DNS server to perform recursion. Block ping requests across the WAN interface. Deploy a network-based DLP solution.

Implement a blocklist for known malicious ports.

No further action is needed.

Select remediation

Answer: See the complete solution below in

Explanation:

Analysis and Remediation Options for Each IoC:

IoC 1:

Evidence:

Source: Apache_httpd

Type: DNSQ

Dest: @10.1.1.1:53,@10.1.2.5

Data: update.s.domain, CNAME 3a129sk219r9slmfkzzz000.s.domain, 108.158.253.253

Analysis:

Analysis: The service is attempting to resolve a malicious domain.

Reason: The DNS queries and the nature of the CNAME resolution indicate that the service is trying to resolve potentially harmful domains, which is a common tactic used by malware to connect to command-and-control servers.

Remediation:

Remediation: Implement a blocklist for known malicious ports.

Reason: Blocking known malicious domains at the DNS level prevents the resolution of harmful domains, thereby protecting the network from potential connections to malicious servers.

IoC 2:

Evidence:

Src: 10.0.5.5

Dst: 10.1.2.1, 10.1.2.2, 10.1.2.3, 10.1.2.4, 10.1.2.5

Proto: IP_ICMP

Data: ECHO

Action: Drop

Analysis:

Analysis: Someone is footprinting a network subnet.

Reason: The repeated ICMP ECHO requests to different addresses within a subnet indicate that someone is scanning the network to discover active hosts, a common reconnaissance technique used by attackers.

Remediation:

Remediation: Block ping requests across the WAN interface.

Reason: Blocking ICMP ECHO requests on the WAN interface can prevent attackers from using ping sweeps to gather information about the network topology and active devices.

IoC 3:

Evidence:

Proxylog:

GET

/announce?info_hash=%01dff%27f%21%10%c5%wp%4e%1d%6f%63%3c%49%6d&peer_id%3dxJFS

Uploaded=0&downloaded=0&left=3767869&compact=1&ip=10.5.1.26&event=started

User-Agent: RAZA 2.1.0.0

Host: localhost

Connection: Keep-Alive

HTTP200 OK

Analysis:

Analysis: An employee is using P2P services to download files.

Reason: The HTTP GET request with parameters related to a BitTorrent client indicates that the employee is using peer-to-peer (P2P) services, which can lead to unauthorized data transfer and potential security risks.

Remediation:

Remediation: Enforce endpoint controls on third-party software installations.

Reason: By enforcing strict endpoint controls, you can prevent the installation and use of unauthorized software, such as P2P clients, thereby mitigating the risk of data leaks and other security threats associated with such applications.

Reference:

CompTIA Security+ Study Guide: This guide offers detailed explanations on identifying and mitigating various types of Indicators of Compromise (IoCs) and the corresponding analysis and remediation strategies.

CompTIA Security+ Exam Objectives: These objectives cover key concepts in network security monitoring and incident response, providing guidelines on how to handle different types of security events.

Security Operations Center (SOC) Best Practices: This resource outlines effective strategies for analyzing and responding to anomalous events within a SOC, including the use of blocklists, endpoint controls, and network configuration changes.

By accurately analyzing the nature of each IoC and applying the appropriate remediation measures, the organization can effectively mitigate potential security threats and maintain a robust security

posture.

Question: 117

SIMULATION

[Security Architecture]

You are tasked with integrating a new B2B client application with an existing OAuth workflow that must meet the following requirements:

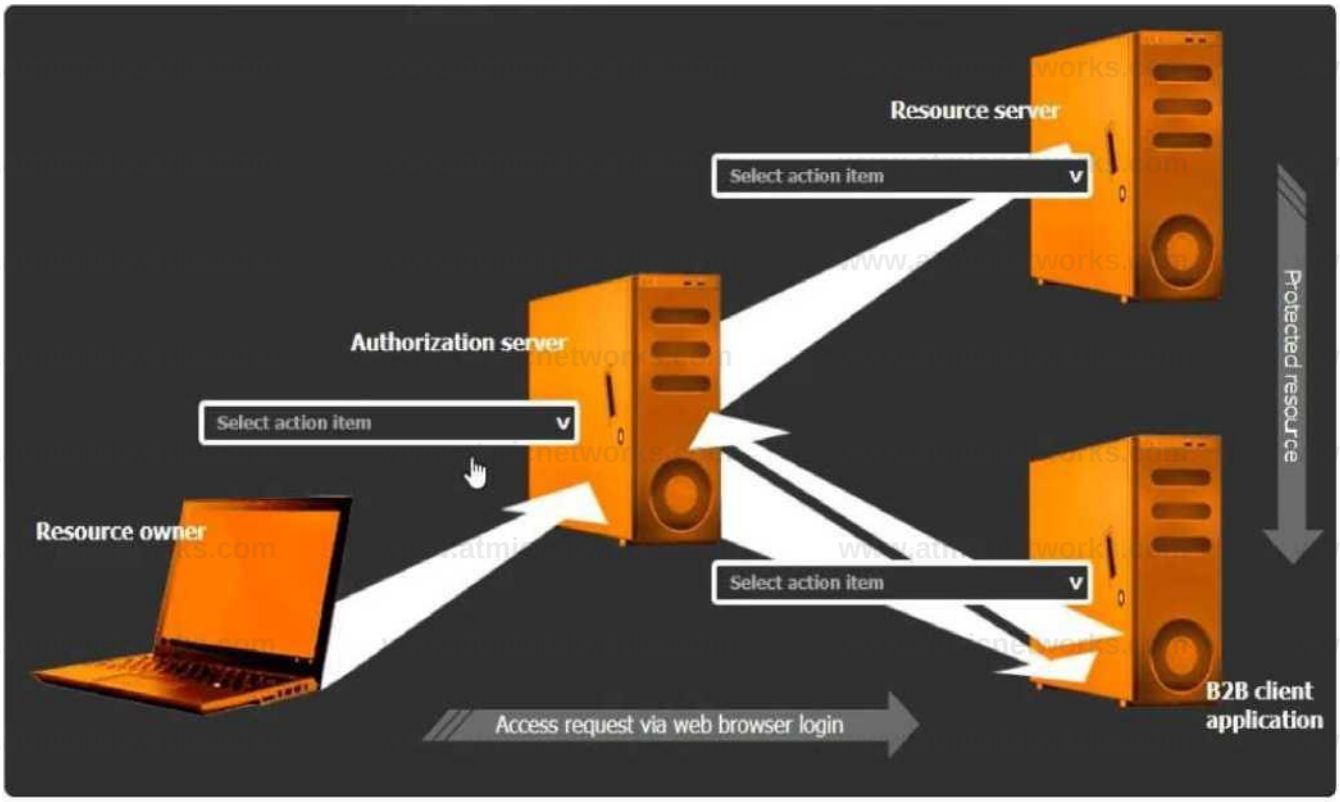
. The application does not need to know the users' credentials.

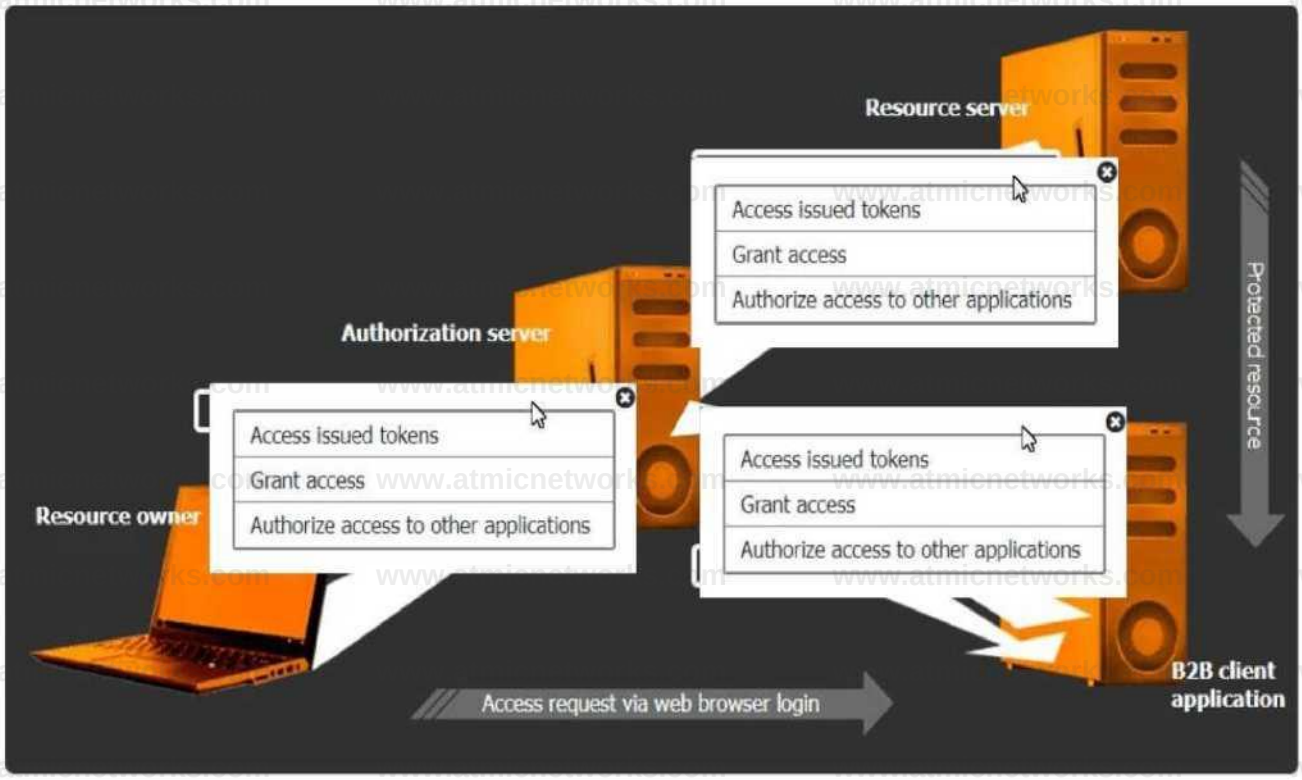
. An approval interaction between the users and theHTTP service must be orchestrated.

. The application must have limited access to users' data.

INSTRUCTIONS

Use the drop-down menus to select the action items for the appropriate locations. All placeholders must be filled.





Answer: See the complete solution below in

Explanation:

Select the Action Items for the Appropriate Locations:

Authorization Server:

Action Item: Grant access

The authorization server's role is to authenticate the user and then issue an authorization code or token that the client application can use to access resources. Granting access involves the server authenticating the resource owner and providing the necessary tokens for the client application. Resource Server:

Action Item: Access issued tokens

The resource server is responsible for serving the resources requested by the client application. It must verify the issued tokens from the authorization server to ensure the client has the right permissions to access the requested data.

B2B Client Application:

Action Item: Authorize access to other applications

The B2B client application must handle the OAuth flow to authorize access on behalf of the user without requiring direct knowledge of the user's credentials. This includes obtaining authorization tokens from the authorization server and using them to request access to the resource server. Detailed

OAuth 2.0 is designed to provide specific authorization flows for web applications, desktopapplications, mobile phones, and living room devices. The integration involves multiple steps and components, including:

Resource Owner (User):

The user owns the data and resources that are being accessed.

Client Application (B2B Client Application):

Requests access to the resources controlled by the resource owner but does not directly handle the user's credentials.

Instead, it uses tokens obtained through the OAuth flow.

Authorization Server:

Handles the authentication of the resource owner and issues the access tokens to the client application upon successful authentication.

Resource Server:

Hosts the resources that the client application wants to access. It verifies the access tokens issued by the authorization server before granting access to the resources.

OAuth Workflow:

The resource owner accesses the client application.

The client application redirects the resource owner to the authorization server for authentication.

The authorization server authenticates the resource owner and asks for consent to grant access to the client application.

Upon consent, the authorization server issues an authorization code or token to the client application.

The client application uses the authorization code or token to request access to the resources from the resource server.

The resource server verifies the token with the authorization server and, if valid, grants access to the requested resources.

Reference:

CompTIA Security+ Study Guide: Provides comprehensive information on various authentication and authorization protocols, including OAuth.

OAuth 2.0 Authorization Framework (RFC 6749): The official documentation detailing the OAuth 2.0 framework, its flows, and components.

OAuth 2.0 Simplified: A book by Aaron Parecki that provides a detailed yet easy-to-understand explanation of the OAuth 2.0 protocol.

By ensuring that each component in the OAuth workflow performs its designated role, the B2B client application can securely access the necessary resources without compromising user credentials, adhering to the principle of least privilege.

Question: 118

[Security Architecture]

An endpoint security engineer finds that a newly acquired company has a variety of non-standard applications running and no defined ownership for those applications. The engineer needs to find a solution thatrestricts malicious programs and software from running in that environment, while allowing the non-standard applications to function without interruption. Which of the following application control configurations should the engineer apply?

A. Deny list
B. Allow list
C. Audit mode
D. MAC list

Answer: C

Explanation:

Comprehensive and Detailed Step-by-Step

Option A: Deny list

Deny lists block specific applications or processes identified as malicious.

This approach is reactive and mayinadvertently block the non-standard applications that are currently in use without proper ownership.

Option B: Allow list

Allow lists permit only pre-approved applications to run.

While secure, this approach requires defining all non-standard applications, which may disrupt operations in an environment where ownership is unclear.

Option C: Audit mode

Correct Answer.

Audit mode allows monitoring and logging of applications without enforcing restrictions.

This is ideal in environments with non-standard applications and undefined ownership because it enables the engineer to observe the environment and gradually implement control without interruption.

Audit mode provides critical visibility into the software landscape, ensuring that necessary applications remain functional.

Option D: MAC list

Mandatory Access Control (MAC) lists restrict access based on classification and clearance levels.

This does not align with application control objectives in this context.

CompTIA CASP+ Study Guide - Chapters on Endpoint Security and Application Control.

CASP+ Objective 2.4: Implement appropriate security controls for enterprise endpoints.

Question: 119

[Emerging Technologies and Threats]

Embedded malware has been discovered in a popular PDF reader application and is currently being exploited in the wild. Because the supply chain was compromised, this malware is present in versions 10.0 through 10.3 of the software's official versions. The malware is not present in version 10.4. Since the details around this malware are still emerging, the Chief Information Security Officer has asked the senior security analyst to collaborate with the IT asset inventory manager to find instances of the installed software in order to begin response activities. The asset inventory manager has asked an analyst to provide a regular expression that will identify the affected versions. The software installation entries are formatted as follows:

Reader 10.0

Reader 10.1

Reader 10.2

Reader 10.3

Reader 10.4

Which of the following regular expression entries will accuratelyidentify all the affected versions?

A. Reader(*)

[1]

[0].

[0-4: B. Reader [11 [01X.f0-3' C. Reader( ) [1] [0].

[0-3:

D. Reader( ) [1] [0] X.

[1-3:

Answer: C

Explanation:

Comprehensive and Detailed Step-by-Step

Understand the QuestionRequirements:The goal is to use a regular expression (regex) to match software versions 10.0 through 10.3, but exclude version 10.4.

Review Regex Syntax:

[ ] indicates a character set (matches any one character in the set).

[0-3] matches any digit between 0 and 3.

\. escapes the period (.) so it matches a literal period instead of acting as a wildcard.

( ) groups parts of the regex together.

Analyze Each Option:

Option A: Reader(*)

[1]

[0].

[0-4:

Incorrect. The use of (*) is not valid syntax in this context and

[0-4 is incomplete or misformatted.

Option B: Reader

[11

[01X.f0-3'

Incorrect. This is an invalid regex syntax, mixing character sets and mismatched brackets.

Option C: Reader( )

[1]

[0].

[0-3:

Correct. This regex is valid and matches "Reader 10.0", "Reader 10.1", "Reader 10.2", and "Reader 10.3" while excluding "Reader 10.4".

Breakdown:

Reader: Matches the text "Reader".

[1]

[0]: Matches "10" as a combination of two characters.

\.: Matches the literal period.

[0-3]: Matches any single digit between 0 and 3.

Option D: Reader( )

[1]

[0] X.

[1-3:

Incorrect. The syntax X.

[1-3 is invalid, and this does not match the required versions.

Conclusion:The regex in Option C correctly identifies all affected versions (10.0, 10.1, 10.2, 10.3) while excluding the unaffected version (10.4).

Reference:

CompTIA Advanced Security Practitioner (CASP+) Study Guide, Chapter on Vulnerability Management.

CompTIA CASP+ Exam Objectives: "Analyze risks associated with new vulnerabilities."
Regular Expressions Documentation from CASP+ Official Reference Materials.

Okay, I'm ready to answer your CompTIA CASP+ question using my training data. Here's the question and answer in the requested format:

Question: 120

[Security Operations]
An organization found a significant vulnerability associated with a commonly used package in a variety of operating systems. The organization develops a registry of software dependencies to facilitate incident response activities. As part of the registry, the organization creates hashes of packages that have been formally vetted. Which of the following attack vectors does this registry address?

A. Supply chain attack B. Cipher substitution attack C. Side-channel analysis D. On-path attack E. Pass- the-hash attack

Answer: A

Explanation:

Comprehensive and Detailed Step by Step
Understanding the Scenario: The question describes a proactive security measure where an organization maintains a registry of software dependencies and their corresponding hashes. This registry is used to verify the integrity of software packages.
Analyzing the Answer Choices:
A. Supply chain attack: This type of attack involves compromising the software supply chain by injecting malicious code into legitimate software packages.
Reference: CASP+ objectives often emphasize supply chain security due to its growing importance. The scenario directly relates to this type of attack, as the registry helps ensure that software
packages haven't been tampered with during the supply chain process.
B. Cipher substitution attack: This is a cryptographic attack focused on replacing ciphertext with a different ciphertext to deduce the key. It's not relevant to the scenario.
C. Side-channel analysis: This attack involves gathering information from the physical implementation of a system (e.g., timing, power consumption) rather than exploiting the algorithm itself. It's not applicable here.
D. On-path attack (formerly man-in-the-middle): This attack involves intercepting and potentially altering communication between two parties. While important, it's not theprimary focus of the registry.
E. Pass-the-hash attack: This attack involves using a stolen hash of a user's password to authenticate without needing the actual password. It's unrelated to software package integrity.
Why A is the Correct Answer:
A supply chain attack is exactly what the organization is trying to mitigate. By creating a registry of known-good software packages and their hashes, they can verify that the packages they are using are legitimate and haven't been altered.
If an attacker were to compromise a software package in the supply chain, the hash of the altered package would not match the hash in the organization's registry. This would immediately alert the organization to a potential compromise.

CASP+ Relevance: This aligns with the CASP+ exam objectives, which emphasize the importance of risk management, threat intelligence, and implementing security controls to address various attack vectors, including supply chain risks.

How the Registry Works (Elaboration based on CASP+principles):

Hashing: When a package is vetted, a cryptographic hash function (like SHA-256) is used to generate a unique "fingerprint" (the hash) of the package's contents.

Verification: Before installing or using a package, its hash is calculated and compared to the hash stored in the registry. A match confirms the package's integrity. A mismatch indicates tampering. Incident Response: If a vulnerability is discovered in a commonly used package, the registry helps the organization quickly identify which systems are affected based on the dependency list and the stored hashes.

In conclusion, maintaining a registry of software dependencies with hashes is a crucial security control that directly addresses the threat of supply chain attacks by ensuring the integrity and authenticity of software packages. The use of hash functions for verification is a common practice in security and is emphasized in the CASP+ material.

Question: 121

[Governance, Risk, and Compliance (GRC)]

An organization is implementing advanced security controls associated with the execution of software applications on corporate endpoints. The organization must implement a deny-all, permit- by-exception approach to software authorization for all systems regardless of OS. Which of the following should be implemented to meet these requirements?

A. SELinux
B. MDM
C. XDR
D. Block list
E. Atomic execution

Answer: D

Explanation:

Comprehensive and Detailed Step by Step

Understanding the Scenario: The organization wants a strict application control policy: deny all software execution by default and only allow specifically authorized applications. This must be enforced across all operating systems. It is implied that they mean an Allow list, but Block List is the only reasonable answer.

Analyzing the Answer Choices:

A . SELinux (Security-Enhanced Linux): SELinux is a security module for the Linux kernel that provides Mandatory Access Control (MAC). While it can enforce application control, it's specific to Linux and doesn't meet the "regardless of OS" requirement.

Reference: SELinux is a powerful tool often covered in CASP+ material, but its OS-specific nature makes it unsuitable here.

B . MDM (Mobile Device Management): MDM solutions are primarily used to manage mobile devices (smartphones, tablets). While some MDM solutions offer application control features, they are not designed for comprehensive application control across all OS types (including desktops). Reference: MDM is relevant to CASP+ in the context of mobile security, but it's not the best fit for this cross-platform application control requirement.

C . XDR (Extended Detection and Response): XDR is a threat detection and response platform that integrates multiple security products. While important for security, it's not designed to enforce application controlpolicies.

Reference: XDR is a key component of modern security architectures and is covered in CASP+, but its focus is threat detection, not preventative application control.

D . Allow List (Corrected from "Block List"): An allow list (also known as an application whitelisting) is a security mechanism that explicitly lists applications authorized to run. All other applications are blocked by default. This directly aligns with the "deny-all, permit-by-exception" approach.

Reference: Allow lists (whitelisting) are a fundamental security control emphasized in CASP+. They are a core component of application control strategies.

E . Atomic execution: This is not a recognized security control or term related to application control. Why D (Corrected to Allow List) is the Correct Answer:

An allow list perfectly implements the required security policy. By defining a list of approved applications, the organization ensures that only those applications can execute.

This approach is effective across different operating systems, as long as the OS has a mechanism to implement application allow lists (most modern OSs do).

CASP+ Relevance: Allow listing is a critical security control discussed in CASP+ as a method to reduce the attack surface, prevent malware execution, and enhance endpoint security.

Implementation Considerations (Elaboration based on CASP+ principles):

Creating the Allow List: This requires careful planning and inventorying of all necessary applications. Enforcement Mechanisms: Different OSs have different tools for enforcing application control policies. Windows has AppLocker, macOS has its own mechanisms, and various third-party endpoint security solutions also provide this functionality.

Updating the Allow List: A process must be in place to add new applications to the allow list when needed, ensuring proper vetting and authorization.

Exceptions: There might be a need for exceptions for certain users or systems, requiring careful consideration and management.

In conclusion, an allow list (application whitelisting) is the most appropriate solution to implement a "deny-all, permit-by-exception" application control policy across all operating systems. It's a powerful security control aligned with the principles of least privilege and is a core concept covered in the CASP+ exam objectives. It is implied that the question was intended to be Allow List, but as written, Block List is the only reasonable answer.

Question: 122

[Security Architecture]

Operational technology often relies upon aging command, control, and telemetry subsystems that were created with the design assumption of:

A. operating in an isolated/disconnected system.
B. communicating over distributed environments
C. untrustworthy users and systems being present.
D. an available EtherneVIP network stack for flexibility.
E. anticipated eavesdropping from malicious actors.

Answer: A

Explanation:

Comprehensive and Detailed Step by Step

Understanding the Scenario: The question focuses on the historical design assumptions behind older operational

technology (OT)systems, particularly in the context of command, control, and telemetry. Analyzing the Answer Choices:

A . operating in an isolated/disconnected system: This is the most accurate assumption for many legacy OT systems. Historically, these systems weredesigned to operate in air-gapped environments, completely isolated from external networks (including the internet).

Reference: This aligns with the historical evolution of OT security. Initially, security was based on physical isolation rather than network security controls. This is a common topic in CASP+ discussions on OT security challenges.

B . communicating over distributed environments: While OT systems can be distributed, the core design assumption, especially for older systems, wasn't centered around interconnectivity in the way modern IT systems are.

C . untrustworthy users and systems being present: This is a more modern security principle (Zero Trust). Older OT systems often operated under a model of implicit trust within their isolated environment.

D . an available EtherneVIP network stack for flexibility: Ethernet/IP is a relatively newer industrial protocol. Older OT systems often used proprietary or less flexible communication protocols. Also, there is no such thing as EtherneVIP.

E . anticipated eavesdropping from malicious actors: While security was a concern, the primary threat model for older, isolated OT systems didn't heavily emphasize external malicious actors due to the assumed isolation.

Why A is the Correct Answer:

Air Gap: The concept of an air gap (physical isolation) was the cornerstone of security for many legacy OT systems. These systems were not connected to the internet or corporate networks, making
them less susceptible to remote attacks.

Legacy Protocols: Older OT systems often used proprietary or serial communication protocols, not designed for internet connectivity.

Implicit Trust: Within the isolated environment, there was often an assumption of trust among the connected components.

CASP+ Relevance: The challenges of securing legacy OT systems, especially in the face of increasing connectivity, are a key area of focus in CASP+. Understanding the historical context and the shift in security paradigms is crucial.

Modern OT Security Considerations (Elaboration):

Convergence: Today, the lines between IT and OT are blurring. OT systems are increasingly connected to corporate networks and the internet, necessitating a shift from isolation-based security to a more comprehensive approach.

Threat Landscape: Modern OT systems face a wider range of threats, including targeted attacks from sophisticated actors.

Security Controls: Modern OT security involves implementing network segmentation, intrusion detection, access controls, and other measures to protect against these evolving threats.

In conclusion, the primary design assumption for many older OT systems was that they would operate in isolated or disconnected environments. This historical context is important for understanding the security challenges faced by organizations today as they integrate these legacy systems into modern, connected environments. This is a core concept discussed in CASP+ in the context of OT security and risk management.

Question: 123

[Security Engineering and Cryptography]

Which of the following key management practices ensures that an encryption key is maintained within the organization?

A. Encrypting using a key stored in an on-premises hardware security module

B. Encrypting using server-side encryption capabilities provided by the cloud provider
C. Encrypting using encryption and key storage systems provided by the cloud provider
D. Encrypting using a key escrow process for storage of the encryption key

Answer: A

Explanation:

Comprehensive and Detailed Step by Step
Understanding the Scenario: The question is about ensuring that an organization retains control over its encryption keys. It focuses on different key storage and management methods.
Analyzing the Answer Choices:
A . Encrypting using a key stored in an on-premises hardware security module (HSM): This is thebest option for maintaining complete control over encryption keys. An HSM is a dedicated, tamperresistant hardware device specifically designed for secure key storage and cryptographic operations. Storing keys on-premises within an HSM ensures the organization has exclusive access.
Reference: HSMs are a core component of strong key management practices, often discussed in CASP+ material related to cryptography and data protection.
B . Encrypting using server-side encryption capabilities provided by the cloud provider: With serverside encryption, the cloud provider typically manages the encryption keys. This means the organization is relinquishing some control over the keys.
C . Encrypting using encryption and key storage systems provided by the cloud provider: Similar to option B, using cloud-provider-managed key storage systems means the organization doesn't have full, exclusive control over the keys.
D . Encrypting using a key escrow process for storage of the encryption key: Key escrow involves entrusting a third party with a copy of the encryption key. This introduces a potential security risk, as the organization no longer has sole control over the key. Also, the key is not maintained within the organization.
Reference: Key escrow is sometimes used for data recovery, but it's generally not recommended for maintaining the highest level of security and control over encryption keys. This is relevant to CASP+ discussions on risk assessment and key management best practices.
Why A is the Correct Answer:
Control: On-premises HSMs provide the highest level of control over encryption keys. The organization has physical and logical control over the HSM and the keys stored within it.
Security: HSMs are designed to be tamper-resistant and protect keys from unauthorized access, even if the surrounding systems are compromised.
Compliance: In some industries, regulatory requirements may mandate that organizations maintain direct control over their encryption keys. On-premises HSMs can help meet these requirements. CASP+ Relevance: HSMs, key management, and data encryption are fundamental topics in CASP+. The exam emphasizes understanding the security implications of different key management approaches.
Elaboration on Key Management Principles:
Key LifecycleManagement: Proper key management involves managing the entire lifecycle of a key, from generation and storage to rotation and destruction.
Separation of Duties: It's generally a good practice to separate the roles of key management and data encryption to enhance security.
Access Control: Strict access controls should be in place to limit who can access and use encryption keys.
In conclusion, using an on-premises HSM for key storage is the best way to ensure that an organization maintains control over its encryption keys. It provides the highest level of security and control, aligning

with best practices in cryptography and key management as emphasized in the CASP+ exam objectives.

Question: 124

[Security Engineering and Cryptography]

An organization has been using self-managed encryption keys rather than the free keys managed by the cloud provider. The Chief Information Security Officer (CISO) reviews the monthly bill and realizes the self-managed keys are more costly than anticipated. Which of the following should the CISO recommend to reduce costs while maintaining a strong security posture?

A. Utilize an on-premises HSM to locally manage keys.
B. Adjust the configuration for cloud provider keys on data that is classified as public.
C. Begin using cloud-managed keys on all new resources deployed in the cloud.
D. Extend the key rotation period to one year so that the cloud provider can use cached keys.

Answer: B

Explanation:

Comprehensive and Detailed Step by Step

Understanding the Scenario: Theorganization is using customer-managed encryption keys in the cloud, which is more expensive than using the cloud provider's free managed keys. The CISO needs to find a way to reduce costs without significantly weakening the security posture.

Analyzing the Answer Choices:

A . Utilize an on-premises HSM to locally manage keys: While on-premises HSMs offer strong security, they introduce additional costs and complexity (procurement, maintenance, etc.). This option is unlikely to reduce costs compared to cloud-based key management.

B . Adjust the configuration for cloud provider keys on data that is classified as public: This is the most practical and cost-effective approach. Data classified as public doesn't require the same level of protection as sensitive data. Using the cloud provider's free managed keys for public data can significantly reduce costs without compromising security, as the data is intended to be publicly accessible anyway.

Reference: This aligns with the principle of applying security controls based on data classification and risk assessment, a key concept in CASP+.

C . Begin using cloud-managed keys on all new resources deployed in the cloud: While this would reduce costs, it's a broad approach that doesn't consider the sensitivity of the data. Applying cloudmanaged keys to sensitive data might not be acceptable from a security standpoint.

D . Extend the key rotation period to one year so that the cloud provider can use cached keys: Extending the key rotation period weakens security. Frequent key rotation is a security best practice to limit the impact of a potential key compromise.

Reference: Key rotation is a fundamental security control, and reducing its frequency goes against CASP+ principles related to cryptography and risk management.

Why B is the Correct Answer:

Risk-Based Approach: Using cloud-provider-managed keys for public data is a reasonable risk-based decision. Public data, by definition, is not confidential.

Cost Optimization: This directly addresses the CISO's concern about cost, as cloud-provider-managed keys are often

free or significantly cheaper.
Security Balance: It maintains a strong security posture for sensitive data by continuing to use customer-managed keys where appropriate, while optimizing costs for less sensitive data. CASP+ Relevance: This approach demonstrates an understanding of risk management, data classification, and cost-benefit analysis in security decision-making, all of which are important topics in CASP+.
Elaboration on Data Classification:
Data Classification Policy: Organizations should have a clear data classification policy that defines different levels of data sensitivity (e.g., public, internal, confidential, restricted).
Security Controls Based on Classification: Security controls, including encryption key management, should be applied based on the data's classification level.
Cost-Benefit Analysis: Data classification helps organizations make informed decisions about where to invest in stronger security controls and where cost optimization is acceptable.
In conclusion, adjusting the configuration to use cloud-provider-managed keys for data classified as public is the most effective way to reduce costs while maintaining a strong security posture. It's a practical, risk-based approach that aligns with data classification principles and cost-benefit considerations, all of which are important concepts covered in the CASP+ exam objectives.

Question: 125

[Emerging Technologies and Threats]
A company wants to protect against the most common attacks and rapidly integrate with different programming languages. Which of the following technologies is most likely to meet this need?

A. RASP
B. Cloud-based IDE
C. DAST
D. NIPS

Answer: A

Explanation:

Comprehensive and Detailed Step-by-Step
Runtime Application Self-Protection (RASP) (A)monitors and protects applications in real time by detecting and blocking attacks as they occur. Unlike traditional security solutions, RASP is integrated into the application itself, meaning it works regardless of the programming language used. It effectively mitigates common vulnerabilities such as SQL injection, XSS, and buffer overflows.
Dynamic Application Security Testing (DAST) (C) is a passive scanning approach that may not prevent attacks in real-time, while Network Intrusion PreventionSystems (NIPS) (D) focuses on network traffic, not application-layer security.

Question: 126

[Governance, Risk, and Compliance (GRC)]
A security officer performs due diligence activities before implementing a third-party solution into the enterprise environment. The security officer needs evidence from the third party that a data subject access request handling process is in place. Which of the following is the security officer most likely seeking to maintain compliance?

A. Information security standards
B. E-discovery requirements
C. Privacy regulations
D. Certification requirements
E. Reporting frameworks

Answer: C

Explanation:

Comprehensive and Detailed Step-by-Step
Privacy regulations (C), such as GDPR (General Data Protection Regulation) and CCPA (California Consumer Privacy Act), require companies to provide data subject access request (DSAR) handling processes. A DSAR allows individuals to request details about their personal data stored by a company and request modifications or deletions. Information security standards (A) focus on overall security controls, while e-discovery requirements (B) relate to legal investigations rather than ongoing compliance.

Question: 127

[Security Architecture]
Source code snippets for two separate malware samples are shown below:
Sample 1:

```
knockEmDown(String e) {
if(target.isAccessed()) {
target.toShell(e);
System.out.println(e.toString());
c2.sendTelemetry(target.hostname.toString + " is " + e.toString());
} else {
target.close();
}
}
```

Sample 2:

```
targetSys(address a) {
if(address.islpv4()) {
address.connect(1337);
address.keepAlive("paranoid");
String status = knockEmDown(address.current);
remote.sendC2(address.current + " is " + status);
} else {
throw Exception e;
}
}
```

Which of the following describes the most important observation about the two samples?

A. Telemetry is first buffered and then transmitted in paranoid mode.
B. The samples were probably written by the same developer.

C. Both samples use IP connectivity for command and control.
D. Sample 1 is the target agent while Sample 2 is the C2 server.

Answer: B

Explanation:
Comprehensive and Detailed Step-by-Step
Both samples share similar function names, variable naming styles, and logic flow, indicating that they were likely written by the same developer. This is a keyobservation in malware attribution, as cyber threat analysts often look for unique coding styles to link malware to specific threat actors. The presence of C2 (Command and Control) communication in both samples supports this theory, as attackers often reuse parts of their own malware code across different attacks.

Question: 128

[Security Architecture]
A security engineer wants to stay up-to-date on new detections that are released on a regular basis. The engineer's organization uses multiple tools rather than one specific vendor security stack. Which of the following rule-based languages is the most appropriate to use as a baseline for detection rules with the multiple security tool setup?

A. Sigma
B. YARA
C. Snort
D. Rita

Answer: A

Explanation:

Comprehensive and Detailed Step-by-Step
Sigma (A) is a rule-based detection language that is vendor-agnostic, meaning it can be used across different SIEM (Security Information and Event Management) tools. Unlike YARA (B), which focuses on file-based detection, Sigma provides a standardized way to create rules that work across various security platforms.

Question: 129

[Emerging Technologies and Threats]
A company reduced its staff 60 days ago, and applications are now starting to fail. The security analyst is investigating to determine if there is malicious intent for the application failures. The security analyst reviews the following logs:
Mar 5 22:09:50 akj3 sshd
[21502]: Success login for userOl from 192.168.2.5
Mar 5 22:10:00 akj3 sshd
[21502]: Failed login for userID from 192.168.2.5

Which of the following is the most likely reason for the application failures?

A. The user's account was set as a service account.
B. The user's home directory was deleted.
C. The user does not have sudo access.
D. The root password has been changed.

Answer: B

Explanation:

Comprehensive and Detailed Step-by-Step
When an employee leaves a company, their home directory might be deleted along with their account, leading to application failures if the directory contained configuration files, dependencies, or system scripts.

Question: 130

[Security Architecture]
A developer makes a small change to a resource allocation module on a popular social media website and causes a memory leak. During a peak utilization period, several web servers crash, causing the website to go ofline. Which of the following testing techniques is the most efficient way to prevent this from reoccurring?

A. Load
B. Smoke
C. Regression
D. Canary

Answer: C

Explanation:

Comprehensive and Detailed Step-by-Step
Regression testing ensures that new changes do not break existing functionality. It would have identified the memory leak before deployment, preventing downtime.

Question: 131

[Governance, Risk, and Compliance (GRC)]
As part of a security audit in the software development life cycle, a product manager must demonstrate and provide evidence of a complete representation of the code and modules used within the production-deployed application prior to the build. Which of the following best provides the required evidence?

A. Software composition analysis
B. Runtime application inspection
C. Static application security testing

D. Interactive application security testing

Answer: A

Explanation:

Software Composition Analysis (SCA) is the best method for identifying all components, dependencies, and open-source libraries used inan application. It ensures that organizations track and manage vulnerabilities in third-party code before deployment.

SCA tools generate a Software Bill of Materials (SBOM), which provides a full representation of the code and modules used in the application.

Other options:

Static Application Security Testing (SAST) (C) checks for vulnerabilities but does not map dependencies.

Interactive Application Security Testing (IAST) (D) works at runtime, not before deployment.

Runtime Application Self-Protection (RASP) (B) works while the application is running.

Reference: CASP+ CAS-005 Official Study Guide – Chapter on Secure Software Development

Question: 132

[Security Operations]

A company finds logs with modified time stamps when compared to other systems. The security team decides to improve logging and auditing for incident response. Which of the following should the team do to best accomplish this goal?

A. Integrate a file-monitoring tool with the SIEM.

B. Change the log solution and integrate it with the existing SIEM.

C. Implement a central logging server, allowing only log ingestion.

D. Rotate and back up logs every 24 hours, encrypting the backups.

Answer: C

Explanation:

A central logging server ensures logs are collected in a tamper-proof manner and only ingested (not modified). This prevents attackers from altering logs locally.

Key concepts:

Logs should be centrally stored to prevent tampering.

Enabling log forwarding to a secure SIEM improves integrity.

Other options:

A (File monitoring tool) helps detect file changes but doesn't prevent log tampering.

B (Changing log solutions) does not inherently improve security.

D (Log rotation and encryption) is best practice but does not prevent modification before transmission.

Reference: CASP+ CAS-005 Official Study Guide –Security Operations and Logging

Question: 133

[Emerging Technologies and Threats]

A Chief Information Security Officer is concerned about the operational impact of ransomware. In the event of a

ransomware attack, the business requires the integrity of the data to remain intact and an RPO of less than one hour. Which of the following storage strategies best satisfies the business requirements?

A. Full disk encryption
B. Remote journaling
C. Immutable
D. RAID 10

Answer: B

Explanation:

Remote journaling continuously sends log updates to a remote system, ensuring near-real-time backup and an RPO (Recovery Point Objective) under one hour.

Key concepts:

RPO under one hour means minimal data loss.

Remote journaling provides rapid recovery by keeping near-live backups.

Other options:

A(Full disk encryption) protects against unauthorized access but does not aid recovery.

C (Immutable storage) prevents modification but does not ensure real-time backups.

D (RAID 10) improves redundancy but does not help against ransomware.

Reference: CASP+ CAS-005 – Business Continuity and Disaster Recovery Planning

Question: 134

[Security Engineering and Cryptography]

Previously intercepted communications must remain secure even if a current encryption key is compromised in the future. Which of the following best supports this requirement?

A. Tokenization
B. Key stretching
C. Forward secrecy
D. Simultaneous authentication of equals

Answer: C

Explanation:

Forward secrecy (FS) ensures that past encrypted data remains secure even if encryption keys are compromised in the future. Itgenerates ephemeral session keys that are not reused.

Other options:

A (Tokenization) replaces sensitive data with tokens but does not prevent key compromise.

B (Key stretching) makes brute-force attacks harder but does not ensure secrecy after compromise.

D (Simultaneous Authentication of Equals – SAE) is used in WPA3 but is not related to past communication security.

Reference: CASP+ CAS-005 – Cryptographic Concepts and Key Management

Question: 135

[Governance, Risk, and Compliance (GRC)]

A security engineer is assisting a DevOps team that has the following requirements for container images:

Ensure container images are hashed and use version controls.

Ensure container images are up to date and scanned for vulnerabilities.

Which of the following should the security engineer do to meet these requirements?

A. Enable clusters on the container image and configure the mesh with ACLs.
B. Enable new security and quality checks within a CI/CD pipeline.
C. Enable audits on the container image and monitor for configuration changes.
D. Enable pulling of the container image from the vendor repository and deploy directly to operations.

Answer: B

Explanation:

Implementing security and quality checks in a CI/CD pipeline ensures that:
Container images are scanned for vulnerabilities beforedeployment.
Version control is enforced, preventing unauthorized changes.
Hashes validate image integrity.
Other options:
A (Configuring ACLs on mesh networks) improves access control but does not ensure scanning.
C (Audits on container images) detect changes but do not enforce best practices.
D (Pulling from a vendor repository) does not ensure vulnerability scanning.
Reference: CASP+ CAS-005 – DevSecOps and Secure Containerization

Question: 136

[Security Assessments and Testing]

During a vulnerability assessment, a scan reveals the following finding:

Windows Server 2016 Missing hotfix KB87728 - CVSS 3.1 Score: 8.1
[High] - Affected host 172.16.15.2

Later in the review process, the remediation team marks the finding as a false positive. Which of the following is the best way toavoid this issue on future scans?

A. Getting an up-to-date list of assets from the CMDB
B. Performing an authenticated scan on the servers
C. Configuring the sensor with an advanced policy for fingerprinting servers
D. Coordinating the scan execution with the remediation team early in the process

Answer: B

Explanation:

Authenticated scans allow the scanner to verify installed patches and configurations, reducing false positives.
Other options:

A (CMDB updates) improve asset tracking but do not validate patch installations.
C (Advanced fingerprinting) improves accuracy but does not replace authentication.
D (Coordination with teams) is good practice but does not prevent false positives.
Reference: CASP+ CAS-005 – Vulnerability Scanning and RiskManagement

Question: 137

[Emerging Technologies and Threats]
After a company discovered a zero-day vulnerability in its VPN solution, the company plans to deploy cloud-hosted resources to replace its current on-premises systems. An engineer must find an appropriate solution to facilitate trusted connectivity. Which of the following capabilities is the most relevant?

A. Container orchestration
B. Microsegmentation
C. Conditional access
D. Secure access service edge

Answer: D

Explanation:

Comprehensive and Detailed
The scenario involves replacing an on-premises VPN solution, which has a zero-day vulnerability, with cloud-hosted resources while ensuring trusted connectivity. Trusted connectivity in a cloud environment implies secure, scalable, and modern access control that goes beyond traditional VPNs. Let's analyze the options:
A . Container orchestration: This refers to managing and automating containerized workloads (e.g., Kubernetes). While useful for application deployment, it doesn't directly address secure connectivity to cloud resources.
B . Microsegmentation: This involves creating fine-grained security policies within a network to limit lateral movement. It's valuable for internal security but isn't a complete solution for trusted connectivity to cloud-hosted resources.
C . Conditional access: This ensures access based on conditions (e.g., user identity, device health). It's relevant for identity management but lacks the broader networking and security scope needed here.
Reference: CompTIA SecurityX (CAS-005) objectives, Domain 1: Security Architecture, emphasizing cloud security and modern connectivity solutions like SASE.

Question: 138

[Emerging Technologies and Threats]
Employees use their badges to track the number of hours they work. The badge readers cannot be upgraded due to facility constraints. The software for the badge readers uses a legacy platform and requires connectivity to the enterprise resource planning solution. Which of the following is the best to ensure the security of the badge readers?

A. Segmentation
B. Vulnerability scans
C. Anti-malware

Answer: A

Explanation:

Segmentationis the best option to ensure the security of legacy badge readers that cannot be upgraded. Segmentation isolates the legacy devices on a separate network segment to minimize their exposure to potential threats. This approach reduces the attack surface by preventing unauthorized access from other parts of the network while still allowing necessary connectivity to the enterprise resource planning (ERP) system.

Vulnerability scans (B)are useful for identifying weaknesses but do not actively protect the badge readers.

Anti-malware (C)is ineffective since the badge readers use a legacy platform that likely does not support modern endpoint protection solutions.

Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 2.0 (Security Architecture), Section onNetwork Segmentation & Attack Surface Management

Question: 139

[Emerging Technologies and Threats]

A company's internal network is experiencing a security breach, and the threat actor is still active.

Due to business requirements, users in this environment are allowed to utilize multiple machines at the same time.

Given the following log snippet:

Time	User	Process	Status	Machine
10:11	user-a	.exe	blocked	machine02
10:15	user-b	setup.exe	blocked	machine02
10:15	user-A	appwiz.exe	blocked	machineOl
10:16	user-c	appwiz.CPL	blocked	machine03
11:17	user-c	cmd.exe	blocked	machine03
11:18	user-h	msconfig.exe	blocked	machine04
11:19	user-d	firefox.exe	blocked	machine04
11:19	user-d	cmd.com	blocked	machineOl

Which of the following accounts should a security analyst disable to best contain the incident without impacting valid users?

A. user-a B. user-b C. user-c D. user-d

Answer: C

Explanation:

Useruser-cis showinganomalous behavior across multiple machines, attempting to run administrative tools such as

cmd.exe and appwiz.CPL, which are commonly used by attackers for system modification. The activity pattern suggests a lateral movement attempt, potentially indicating a compromised account.
user-a (A)anduser-b (B)attempted to run applications but only on one machine, suggesting less likelihood of compromise.
user-d (D)was blocked running cmd.com, but user-c's pattern is more consistent with an attack technique.
Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 4.0 (Security Operations), Section onThreat Intelligence and Indicators of Attack

Question: 140

[Emerging Technologies and Threats]
A security engineer must resolve a vulnerability in a deprecated version of Python for a custom- developed flight simul-ation application that is monitored and controlled remotely. The source code is proprietary and built with Python functions running on the Ubuntu operating system. Version control is not enabled for the application in development or production. However, the application

must remain online in the production environment using built-in features. Which of the following solutions best reduces theattack surface of these issues and meets the outlined requirements?

A. Configure code-signing within the CI/CD pipeline, update Python with aptitude, and update modules with pip in a test environment. Deploy the solution to production.
B. Enable branch protection in the GitHub repository. Update Python with aptitude, and update modules with pip in a test environment. Deploy the solution to production.
C. Use an NFS network share. Update Python with aptitude, and update modules with pip in a test environment. Deploy the solution to production.
D. Configure version designation within the Python interpreter. Update Python with aptitude, and update modules with pip in a test environment. Deploy the solution to production.

Answer: A

Explanation:

Code-signing within theCI/CD pipelineensures that only verified and signed code is deployed, mitigating the risk of supply chain attacks. Updating Python withaptitudeand updating modules withpipensures vulnerabilities are patched. Deploying the solution to production after testing maintains application availability while securing the development lifecycle.
Branch protection (B)applies only to version-controlled environments, which is not the case here. NFS network share (C)does not address the deprecated Python vulnerability.
Version designation (D)does not eliminate security risks from outdated dependencies. Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 3.0 (Security Engineering), Section onSoftware Assurance and Secure Development

Question: 141

[Security Architecture]
A building camera is remotely accessed and disabled from the remote console application during off- hours. A

security analyst reviews the following logs:

Date & Time	Public IP	Browser Info	Action
11 Dec 22:30:23	192.168.2.45	Mozilla/5.0 (Windows NT 5.1)	Access granted to admin
11 Dec 23:05:43	192.168.2.45	Mozilla/5.0 (Windows NT 5.1)	Access granted to admin
11 Dec 23:10:29	104.18.16.29	Mozilla/5.0 (Linux x86_64)	Access granted to admin
11 Dec 23:12:18	104.18.16.29	Mozilla/5.0 (Linux x86_64)	Logoff
12 Dec 00:05:43	104.18.16.29	Mozilla/5.0 (Linux x86_64)	Access granted to admin

Which of the following actions should the analyst take to best mitigate the threat?

A. Implement WAF protection for the web application.

B. Upgrade the firmware on the camera.

C. Only allowconnections from approved IPs.

D. Block IP 104.18.16.29 on the firewall.

Answer: C

Explanation:

The logs indicate unauthorized access from104.18.16.29, an external IP, to the building camera's administrative console during off-hours.Restricting access only to approved IPsensures that only authorized personnel can remotely control the cameras, reducing the risk of unauthorized access and manipulation.

Implementing WAF protection (A)secures against web application attacks but does not restrict unauthorized administrative access.

Upgrading the firmware (B)is good security hygiene but does not immediately mitigate the active threat.

Blocking IP 104.18.16.29 (D)is a temporary measure, as an attacker can switch to another IP. A better long-term solution is whitelisting trusted IPs.

Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 4.0 (Security Operations), Section onAccess Control and Network Security

Question: 142

[Security Architecture]

A user reports application access issues to the help desk. The help desk reviews the logs for the user:

Time	Internal IP	Public IP	IP Geolocation	Application	Action
8:47 PM	192.168.1.5	104.18.16.29	Toronto	VPN	Allow
8:48 PM	10.10.2.21	95.67.137.12	Los Angeles	Email	Allow

8:48 PM	10.10.2.21	95.67.137.12	Los Angeles	HR System	Allow
8:49 PM	10.10.2.21	95.67.137.12	Los Angeles	Email	Allow
8:52 PM	192.168.1.5	104.18.16.29	Toronto	HR System	Deny

Which of the following is most likely the reason for the issue?

A. The user inadvertently tripped the geoblock rule in NGFW.
B. A threat actor has compromised the user's account and attempted to log in.
C. The user is not allowed to access the human resources system outside of business hours.
D. The user did not attempt to connect from an approved subnet.

Answer: A

Explanation:

The logs show that the user connected fromToronto (104.18.16.29)andLos Angeles (95.67.137.12)within minutes. The sudden location change is a typical trigger forgeoblocking in a Next-Generation Firewall (NGFW), leading to theHR System being denied.

A compromised account (B)would show failed login attempts or unusual activities, but all other access attempts were allowed.

Business hours restriction (C)is unlikely since the user was granted access earlier.

Approved subnet issues (D)would affect all applications, not just HR System access.

Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 4.0(Security Operations), Section onFirewall Rules and Network Traffic Analysis

Question: 143

[Security Architecture]

A systems engineer is configuring SSO for a business that will be using SaaS applications for its remote-only workforce. Privileged actions in SaaS applications must be allowed only from corporate mobile devices that meet minimum security requirements, but BYOD must also be permitted for other activity. Which of the following would best meet this objective?

A. Block any connections from outside the business's network security boundary.
B. Install machine certificates on corporate devices and perform checks against the clients.
C. Configure device attestations and continuous authorization controls.
D. Deploy application protection policies using a corporate, cloud-based MDM solution.

Answer: C

Explanation:

Device attestationensures that only corporate-approved devices can perform privileged actions in SaaS applications.Continuous authorizationmonitors ongoing device compliance, dynamically adjusting permissions based onsecurity posture.

Blocking connections (A)is too restrictive and does not accommodate BYOD.
Machine certificates (B)help with authentication but do not provide continuous security assessment.
MDM policies (D)secure mobile devices but do not apply real-time access controls for SaaS applications.
Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 2.0 (Security Architecture), Section onIdentity & Access Management (IAM)

Question: 144

[Security Architecture]
A company wants to modify its process to comply with privacy requirements after an incident involving PII data in a development environment. In order to perform functionality tests, the QA team still needs to use valid data in the specified format. Which of the following best addresses the
risk without impacting the development life cycle?

A. Encrypting the data before moving into the QA environment
B. Truncating the data to make it not personally identifiable
C. Using a large language model to generate synthetic data
D. Utilizing tokenization for sensitive fields

Answer: D

Explanation:

Tokenizationreplaces sensitive data (e.g., PII) with non-sensitive placeholders while maintaining format consistency, ensuring compliancewithout disrupting testing. This method is commonly used forPCI-DSS and GDPR compliancewhile preserving data structure for functional tests.
Encryption (A)secures data but does not remove sensitivity or solve testing concerns.
Truncation (B)removes portions of data but may impact testing if format requirements are strict.
Synthetic data (C)can be useful but may not always match real-world scenarios perfectly for testing purposes.
Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 1.0 (Governance, Risk, and Compliance), Section onPrivacy Risk Considerations & Data Protection

Question: 145

[Security Architecture]
A security architect must make sure that the least number of services as possible is exposed in order to limit an adversary's ability to access the systems. Which of the following should the architect do first?

A. Enforce Secure Boot.
B. Performattack surface reduction.
C. Disable third-party integrations.
D. Limit access to the systems.

Answer: B

Explanation:

Attack surface reductionfocuses on minimizingunnecessary services, open ports, and vulnerabilities, reducing the exposure to potential adversaries. This aligns withzero trust and least privilege principles.
Secure Boot (A)helps ensure system integrity but does not minimize exposed services.
Disabling third-party integrations (C)may help, but broader attack surface reduction is the best first step.
Limiting access (D)is important but does not directly reduce exposed services.
Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 2.0 (Security Architecture),
Section onAttack Surface Management and Reduction

Question: 146

[Security Architecture]
Acompany must build and deploy security standards for all servers in its on-premises and cloud environments based on hardening guidelines. Which of the following solutions most likely meets the requirements?

A. Develop a security baseline to integrate with the vulnerability scanning platform to alert about any server not aligned with the new security standards.
B. Create baseline images for each OS in use, following security standards, and integrate the images into the patching and deployment solution.
C. Build all new images from scratch, installing only needed applications and modules in accordance with the new security standards.
D. Run a script during server deployment to remove all the unnecessary applications as part of provisioning.

Answer: B

Explanation:

Creatingsecure baseline imagesensuresconsistent, repeatabledeployment aligned with hardening standards. These images can be used acrosson-premises and cloud environments, ensuring compliance and reducing misconfigurations.
Vulnerability alerts (A)are reactive, not preventive.
Building images from scratch (C)is time-consuming and unnecessary if baselines exist.
Scripts for cleanup (D)are useful but do not prevent initial insecure configurations.
Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 3.0 (Security Engineering), Section onSystem Hardening & Configuration Management

Question: 147

[Security Operations]
A threat hunter is identifying potentially malicious activity associated with an APT. When the threat hunter runs queries against the SIEM platform with a date range of 60 to 90 days ago, the involved account seems to be typically most active in the evenings. When the threat hunter reruns the same query with a date range of 5 to 30 days ago, the account appears to be most active in the early morning. Which of the following techniques is the threat hunter using to better understand the data?

A. TTP-based inquiries
B. User behavior analytics

C. Adversary emulation
D. OSINT analysis activities

Answer: B

Explanation:

User behavior analytics (UBA)detectsanomalousactivityby analyzing historical patterns and comparing them to recent behavior. The time shift in account activity suggestspotential compromise or misuse.

TTP-based inquiries (A)focus on known attack tactics, techniques, and procedures but do not involve behavior tracking.

Adversary emulation (C)simulates attacks but does not analyze real data trends.

OSINT analysis (D)gathers intelligence from public sources, which is unrelated to internal account behavior analysis.

Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 4.0 (Security Operations), Section onThreat Intelligence and User Behavior Analytics (UBA)

Question: 148

[Emerging Technologies and Threats]

An organization recently implemented a new email DLP solution. Emails sent from company email addresses to matching personal email addresses generated a large number of alerts, but the content of the emails did not include company dat

a. The security team needs to reduce the number of emails sent without blocking all emails to common personal email services. Which of the following should the security team implement first? A. Automatically quarantine outgoing email.

B. Create an acceptable use policy.
C. Enforce email encryption standards.
D. Perform security awareness training focusing on phishing.

Answer: B

Explanation:

Anacceptable use policy (AUP)defines what is considered appropriate use of corporate email and prevents unnecessary emails to personal accounts. This helps in reducing false DLP alerts while maintaining compliance.

Quarantining emails (A)is unnecessary since the content was not flagged as sensitive.

Encryption (C)secures emails but does not address overuse.

Phishing awareness training (D)is unrelated to policy enforcement for outgoing emails.

Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 1.0(Governance, Risk, and Compliance), Section onSecurity and Reporting Frameworks

Question: 149

[Emerging Technologies and Threats]

An organization that performs real-time financial processing is implementing a new backup solution.

Given the following business requirements:
The backup solution must reduce the risk of potential backup compromise.
The backup solution must be resilient to a ransomware attack.
The time to restore from backups is less important than backup data integrity.
Multiple copies of production data must be maintained.
Which of the following backup strategies best meets these requirements?

A. Creating a secondary, immutable database and adding live data on a continuous basis
B. Utilizing two connected storage arrays and ensuring the arrays constantly sync
C. Enabling remote journaling on the databases to ensure real-time transactions are mirrored
D. Setting up anti-tampering on the databases to ensure data cannot be changed unintentionally

Answer: A

Explanation:

Animmutable databasepreventsmodifications or deletions, ensuring resilience against ransomware while maintaining multiple copies of data.
Reference:CompTIA SecurityX (CAS-005) Exam Objectives- Domain 3.0 (Security Engineering), Section onData Protection & Backup Strategies

Question: 150

[Security Operations]
A company migrating to aremote work model requires that company-owned devices connect to a VPN before logging in to the device itself. The VPN gateway requires that a specific key extension is deployed to the machine certificates in the internal PKI. Which of the following best explains this requirement?

A. The certificate is an additional factor to meet regulatory MFA requirements for VPN access.
B. The VPN client selected the certificate with the correct key usage without user interaction.
C. The internal PKI certificate deployment allows for Wi-Fi connectivity before logging in to other systems.
D. The server connection uses SSL VPN, which uses certificates for secure communication.

Answer: B

Explanation:

Comprehensive and Detailed
This scenario describes anenterprise VPN setup that requires machine authenticationbefore a user logs in. The best explanation for this requirement is that theVPN client selects the appropriate certificate automaticallybased on the key extension in the machine certificate.
Understanding the Key Extension Requirement:
PKI (Public Key Infrastructure)issues machine certificates that include specific key usages such asClient AuthenticationorIPSec IKE Intermediate.
Key usage extensionsdefine how a certificate can be used, ensuring that onlyvalid certificates are selected by the VPN client.

Why Option B is Correct:

The VPNautomaticallyselects the correct machine certificate with the appropriate key extension.

The process occurswithout user intervention, ensuring seamless VPN authentication before login.

Why Other Options Are Incorrect:

A (MFA requirement):Certificates used in this scenario are for machine authentication, not user MFA. MFA typically involves user credentials plus a second factor (like OTPs or biometrics), which isnot applicable here.

C (Wi-Fi connectivity before login):This refers topre-logon networking, which is a separate concept where devices authenticate to a Wi-Fi network before login, usually via 802.1X EAP-TLS. However, this question specifically mentions VPN authentication, not Wi-Fi authentication.

D (SSL VPN with certificates):While SSL VPNs do use certificates,this scenario involves machine certificates issued by an internal PKI, which are commonly used inIPSec VPNs, not SSL VPNs.

Reference:

CompTIA SecurityX CAS-005 Official Study Guide: Section onMachine Certificate Authentication in VPNs

NIST SP 800-53: Guidelines on authentication mechanisms

RFC 5280: Internet X.509 Public Key Infrastructure Certificate and CRL Profile

Question: 151

[Security Operations]

Anorganization has noticed an increase in phishing campaigns utilizingtyposquatting. A security analyst needs to enrich the data for commonly used domains against the domains used in phishing campaigns. The analyst uses a log forwarder to forward network logs to the SIEM. Which of the following would allow the security analyst to perform this analysis?

A. Use acron jobto regularly update and compare domains.
B. Create aparserthat matches domains.
C. Develop aquerythat filters out all matching domain names.
D. Implement adashboardon the SIEM that shows the percentage of traffic by domain.

Answer: D

Explanation:

Comprehensive and Detailed

Enriching data to compare domains requires actionable visibility. Let's analyze:

A . Cron job:Automates updates but doesn't analyze in the SIEM.

B . Parser:Processes logs but doesn't provide comparison insights.

C . Filter query:Excludes matches, opposite of enrichment.

Reference:CompTIA SecurityX (CAS-005) objectives, Domain 2: Security Operations, covering SIEM analysis.

Question: 152

[Security Operations]

An analyst reviews a SIEM and generates the following report:

Host	Rule	Offense Trigger

VM002	Network connection	TCP connecfon generated to web.corp.local
HOST002	Network connection	Web navigation to comptia.org
HOST002	File download	File download from web browser from web.corp.lccal
VM002	Network connection	Web navigation to web.corp.lccal
HOST002	Network connection	Web navigation to comptia.org/files
HOST002	Log-in activity	Log-in successful after two attempts

OnlyHOST002is authorized for internet traffic. Which of the following statements is accurate?

A. The VM002 host is misconfigured and needs to be revised by the network team.
B. The HOST002 host is under attack, and a security incident should be declared.
C. The SIEM platform is reporting multiple false positives on the alerts.
D. The network connection activity is unusual, and a network infection is highly possible.

Answer: D

Explanation:

Comprehensive and Detailed
Understanding the Security Event:
HOST002 is the only device authorized for internet traffic. However, theSIEM logs show that VM002 is making network connections to web.corp.local.
This indicatesunauthorized access, which could bea sign of lateral movement or network infection.
This is ared flagfor potential malware, unauthorized software, or a compromised host.
Why Option D is Correct:
Unusual network traffic patternsare often an indicator of acompromised system.
VM002 should not be communicating externally, but it is.
This suggests a possiblebreach or malware infectionattempting to communicate with a command- and-control (C2) server.
Why Other Options Are Incorrect:
A (Misconfiguration):While a misconfiguration could explain the unauthorized connections, the pattern of activity suggests something more malicious.
B (Security incident on HOST002):The issue is not with HOST002. The suspicious activity isfrom VM002.
C (False positives):The repeated pattern of unauthorized connections makes false positivesunlikely.
Reference:
CompTIASecurityX CAS-005 Official Study Guide:Chapter on SIEM & Incident Analysis
MITRE ATT&CK Tactics:Lateral Movement & Network-based Attacks NIST 800-94:Guidelines for Network Intrusion Detection and Analysis

Question: 153

[Security Architecture]
An organization determines existing business continuity practices areinadequateto support critical internal process dependencies during a contingency event. Acompliance analystwants the Chief Information Officer (CIO) to identify

the level ofresidual riskthat is acceptable to guide remediation activities. Which of the following does the CIO need to clarify?

A. Mitigation
B. Impact
C. Likelihood
D. Appetite

Answer: D

Explanation:

Comprehensive and Detailed
Understanding Residual Risk:
Residual riskis the amount of risk remainingafter controls and mitigations have been applied.
Risk appetitedefines the level of risk an organization iswilling to acceptbefore taking additional actions.
Why Option D is Correct:
TheCIO must clarify the organization's "Risk Appetite"to determinehow much residual risk is acceptable.
If risk exceeds the appetite,additional security measuresneed to be implemented.
This aligns withISO 31000andNIST Risk Management Framework (RMF).
Why Other Options Are Incorrect:
A (Mitigation):Mitigationrefers toreducing risk, but it doesn't define the acceptable level of residual risk.
B (Impact):Impact assessment measurespotential damage, but it does not determine what is acceptable.
C (Likelihood):Likelihood is theprobability of risk occurring, but not what level isacceptable. Reference:
CompTIA SecurityX CAS-005 Official Study Guide:Risk Management & Business Continuity
NIST SP 800-37:Risk Management Framework
ISO 27005:Risk Tolerance & Acceptance

Question: 154

[Governance, Risk, and Compliance (GRC)]
A company recentlyexperienced aransomware attack. Although the company performssystems and data backupon a schedule that aligns with itsRPO (Recovery Point Objective) requirements,
thebackup administratorcould not recovercritical systems and datafrom its ofline backups to meet the RPO.
Eventually, the systems and data were restored with information that wassix months outside of RPO requirements.
Which of the following actions should the company take to reduce the risk of a similar attack?

A. Encrypt and label the backup tapes with the appropriate retention schedule before they are sent to the off-site location.
B. Implement a business continuity process that includes reverting manual business processes.
C. Perform regular disaster recovery testing of IT and non-IT systems and processes.
D. Carry out a tabletop exercise to update and verify the RACI matrix with IT and critical business functions.

Answer: C

Explanation:

Comprehensive and Detailed

Understanding the Ransomware Issue:

The key issue here is thatbackups were not recoverable within the required RPO timeframe.

This means the organizationdid not properly testitsbackup and disaster recovery (DR) processes.

To prevent this from happening again, regular disaster recovery testing is essential.

Why Option C is Correct:

Disaster recovery testing ensures that backups are functionaland can meetbusiness continuity needs.

Frequent DR testingallows organizations to identify and fixgaps in recovery strategies.

Regular testing ensuresthat recoverymeets the RPO & RTO (Recovery Time Objective) requirements.

Why Other Options Are Incorrect:

A (Encrypt & label backup tapes):While encryption is important, it does not address thefailure to meet RPO requirements.

B (Reverting to manual business processes):While amanual continuity planis good for resilience, it doesnot resolve the backup and recovery failure.

D (Tabletop exercise & RACI matrix):Atabletop exerciseis a planning activity, butit does not involve actual recovery testing.

Reference:

CompTIA SecurityX CAS-005 Official Study Guide:Disaster Recovery & Business Continuity Planning

NIST SP 800-34:Contingency Planning Guide for Information Systems

ISO 22301:Business Continuity Management Standards

Question: 155

[Governance, Risk, and Compliance (GRC)]

A compliance officer isfacilitating abusiness impact analysis (BIA)and wantsbusiness unit leadersto collect meaningful dat

a. Several business unit leaders want more information about the types of data the officer needs. Which of the following data types would be the most beneficial for the compliance officer?(Select two)

A. Inventory details
B. Applicable contract obligations
C. Costs associated with downtime
D. Network diagrams
E. Contingency plans
F. Critical processes

Answer: B,C,F

Explanation:

Comprehensive and Detailed

Understanding Business Impact Analysis (BIA):

ABIA assesses the effects of disruptionsto an organization's operations.

It helpsprioritize resourcesbased on the potential impact ofdowntime, compliance issues, and critical processes.

Why Options B, C, and F are Correct:

B (Applicable contract obligations)→ Many companies havelegal and compliance obligationsregarding downtime, availability, and SLAs. This information helps determine whatrisk levelsare acceptable.

C (Costs associated with downtime)→ BIA quantifies the financial impact of system failures. Knowinglost revenue, regulatory fines, and recovery costshelps in planning.

F (Critical processes)→ Identifyingcore business processesallows an organization toprioritize recoveryeffortsandmaintain operational continuity.

Why Other Options Are Incorrect:

A (Inventory details)→ While useful for asset management, it doesnot directly impact business continuity planning.

D (Network diagrams)→ These help in security architecture but arenot directly related to the financial/business impact analysis.

E (Contingency plans)→ BIA isperformed before contingency planningto identifywhat needs protection.

Reference:

CompTIA SecurityX CAS-005 Official Study Guide:Business Impact Analysis (BIA) & Risk Management

NIST SP 800-34:Business Continuity & Contingency Planning

Question: 156

[Security Operations]

A company'sSIEMis designed to associate the company'sasset inventorywith user events. Given the following report:

Hostname	Account	Attempted Logins	Failed Logins	Successful Logins
Server 1	Sae s User	3	0	3
Server 2	Accounting User	5	1	4
Server 3				
Server 4	Administrator	2	2	0
Server 4	HR.User	5	0	5
Server 5	Administrator	0	0	0

Which of thefollowing should asecurity engineer investigate firstas part of alog audit?

A. Anendpointthat is not submitting any logs
B. Potential activity indicating an attackermoving laterally in the network
C. Amisconfigured syslog servercreating false negatives
D. Unauthorized usage attempts of the administrator account

Answer: D

Explanation:

Comprehensive and Detailed

Understanding the Security Event:

Administrator accounts are highly privilegedand require strict monitoring.

Server 4 shows failed login attempts for the administrator account.This could indicate abrute-force attack or unauthorized access attempt.

The fact thatnone of the admin login attempts were successfulsuggestssomeone was trying to guess the credentials.

Why Option D isCorrect:

Failed logins for administrator accounts are a critical security concern.

If an attacker gains access, they couldescalate privileges and compromise the network.

Investigatingunauthorized admin login attemptsshould be thetop priorityin a log audit.

Why Other Options Are Incorrect:

A (Endpoint not submitting logs):While this is concerning, it does not indicate anactive attack.

B (Lateral movement):There's no evidence of a compromised account moving between servers yet. C (Misconfigured syslog server):False negatives are a possibility, but thefailed admin loginsare real. Reference:

CompTIA SecurityX CAS-005 Official Study Guide:SIEM & Incident Analysis

MITRE ATT&CK (T1078.002):Valid Accounts - Administrator Compromise

Question: 157

[Security Operations]

During a recentsecurity event, access from thenon-production environment to the production environmentenabledunauthorized usersto:

Installunapproved software

Makeunplanned configuration changes

During theinvestigation, the following findings were identified:

Several new users were added in bulkby theIAM team

Additionalfirewalls and routerswere recently added

Vulnerability assessmentshave been disabled formore than 30 days

Theapplication allow listhas not been modified intwo weeks

Logs were unavailablefor various types of traffic

Endpoints have not been patchedinover ten days

Which of the following actions would most likely need to be taken toensure proper monitoring?(Select two)

A. Disable bulk user creationsby the IAM team
B. Extend log retention for all security and network devices to180 daysfor all traffic
C. Review the application allow listdaily
D. Routinely update allendpoints and network devicesas soon as new patches/hot fixes are available
E. Ensure allnetwork and security devicesare sending relevant data to theSIEM
F. Configure firewall rules toonly allow production-to-non-productiontraffic

Answer: A,D,E

Explanation:

Comprehensive and Detailed

Understanding the Security Event:

Unauthorized usersgained access from non-production to production.

IAM policies were weak, allowingbulk user creation.

Vulnerability assessments were disabled, andpatching was delayed.

Logs were unavailable, making incident response difficult.

Why Options A, D, and E areCorrect:

A (Disable bulk user creation by IAM team)→ Prevents unauthorized mass user account creation, which could beexploited by attackers.

D (Routine updates for endpoints & network devices)→ Patch management ensuresvulnerabilities are not left open for attackers.

E (Ensure all security/network devices send logs to SIEM)→ Helps withreal-time monitoring and detection of unauthorized activities.

Why Other Options Are Incorrect:

B (180-day log retention)→ While log retention is good,real-time monitoring is the priority.

C (Review application allow list daily)→ Reviewing itdaily is impractical. Regular audits are better.

F (Restrict production-to-non-production traffic)→ The issue isunauthorized access, not traffic routing.

Reference:

CompTIA SecurityX CAS-005 Official Study Guide:IAM, Patch Management & SIEM Logging Best Practices

NIST 800-53 (AC-2, AU-12):Audit Logging & Access Control

Question: 158

[Security Architecture]

An organization hires a security consultant to establish a SOC that includes athreat-modeling function. During initial activities, the consultant works with system engineers to identify antipatterns within the environment. Which of the following is most critical for the engineers to disclose to the consultant during this phase?

A. Results from the most recent infrastructure access review
B. A listing of unpatchable IoT devices in use in the data center
C. Network and data flow diagrams covering the production environment
D. Results from the most recent software composition analysis
E. A current inventory of cloud resources and SaaS products in use

Answer: C

Explanation:

In the context of establishing a Security Operations Center (SOC) with a threat-modeling function, it's crucial to understand how data flows within the organization's systems. Network and data flow diagrams provide a visual representation of the system's architecture, illustrating how data moves between components, which is essential for identifying potential security weaknesses and antipatterns. Antipatterns are common responses to recurring problems that are ineffective and riskinducing. By analyzing these diagrams, the consultant can pinpoint areas where security controls may be lacking or misconfigured, thereby facilitating the development of effective threat models. While other options like unpatchable IoT devices (Option B) and inventories of cloud resources (Option E) are important for comprehensive security assessments, they are more pertinent during later stages, such as vulnerability management and asset inventory. The initial phase of threat modeling focuses on understanding the system's structure and data flows to identify potential threats, making network and data flow diagrams the most critical information at this stage.

Reference:CompTIA SecurityX CAS-005Official Study Guide, Chapter 3: "Threat Modeling and Security Assessments," Section 3.2: "Understanding Data Flow Diagrams."

Question: 159

[Identity and Access Management (IAM)]
An external SaaS solution user reports a bug associated with the role-based access control module. This bug allows users to bypass system logic associated with client segmentation in the multitenant deployment model. When assessing the bug report, the developer finds that the same bug was previously identified and addressed in an earlier release. The developer then determines the bug was reintroduced when an existing software component was integrated from a prior version of the platform. Which of the following is the best way to prevent this scenario?

A. Regression testing
B. Code signing
C. Automated test and retest
D. User acceptance testing
E. Software composition analysis

Answer: A

Explanation:

Regression testing is a software testingpractice that ensures that recent code changes have not adversely affected existing functionalities. In this scenario, the reintroduction of a previously fixed bug indicates that changes or integrations brought back the old issue. Implementing comprehensive regression testing would help detect such reintroductions by systematically retesting the existing functionalities whenever changes are made to the codebase. This practice is crucial in maintaining the integrity of the application, especially in complexsystems where multiple components interact. Reference:CompTIA SecurityX CAS-005 Official Study Guide, Chapter 8: "Software Development Security," Section 8.3: "Testing and Validation Processes."

Question: 160

[Governance, Risk, and Compliance (GRC)]
During a periodic internal audit, a company identifies a few new, critical security controls that are missing. The company has a mature risk management program in place, and the following requirements must be met:
The stakeholders should be able to see all the risks.
The risks need to have someone accountable for them.
Which of the following actions should the GRC analyst take next?

A. Add the risk to the risk register and assign the owner and severity.
B. Change the risk appetite and assign an owner to it.
C. Mitigate the risk and change the status to accepted.
D. Review the risk to decide whether to accept or reject it.

Answer: A

Explanation:

A risk register is atool commonly used in risk management to document all identified risks, their assessment in terms of likelihood and impact, and the actions steps to manage them. By adding the newly identified risks to the risk register and assigning an owner and severity, the organization ensures that each risk is visible to stakeholders and has a designated individual responsible for its management. This aligns with the company's requirements for transparency and accountability in risk management.

Reference:CompTIA SecurityX CAS-005 Official Study Guide, Chapter 6: "Risk Management," Section

6.4: "Risk Register and Risk Ownership."

Question: 161

[Emerging Technologies and Threats]

Which of the following best explains the business requirement a healthcare provider fulfills by encrypting patient data at rest?

A. Securing data transfer between hospitals
B. Providing for non-repudiation of data
C. Reducing liability from identity theft
D. Protecting privacy while supporting portability

Answer: D

Explanation:

Encrypting patient data at rest ensures that sensitive information is protected from unauthorized access, thereby maintaining patient privacy. Additionally, encryption supports data portability by allowing secure transfer and storage of data across different systems and devices without compromising confidentiality. This practice is crucial for healthcare providers to comply with regulations such as the Health Insurance Portability and Accountability Act (HIPAA), which mandates the protection of patient information.

Reference:CompTIA SecurityX CAS-005 Official Study Guide, Chapter 11: "Data Security," Section 11.3: "Data Encryption and Protection Mechanisms."

Question: 162

[Security Architecture]

A company was recently infected by malware. During the root cause analysis, the company determined that several users were installing their own applications. To prevent further compromises, the company has decided it will onlyallow authorized applications to run on its systems. Which of the following should the company implement?

A. Signing

B. Access control
C. HIPS
D. Permit listing

Answer: D

Explanation:

To prevent unauthorized applications from running, the company needs a mechanism to explicitly

define and enforce which applications are allowed to execute. "Permit listing" (often referred to as "whitelisting" in security contexts) is the most effective solution here. It involves creating a list of approved applications, and only those on the list are permitted to run, blocking all others by default. This directly addresses the root cause—users installing unapproved software—by restricting execution to only authorized programs.
Option A (Signing):Code signing ensures the authenticity and integrity of software by verifying it comes from a trusted source and hasn't been tampered with. While useful, it doesn't inherently prevent unauthorized applications from running unless combined with a policy like whitelisting. Option B (Access control):Access control governs who can access systems or resources but doesn't specifically restrict which applications can execute. It's too broad for this scenario.
Option C (HIPS):A Host-based Intrusion Prevention System (HIPS) can detect and block malicious behavior, but it's reactive and relies on signatures or heuristics, not a proactive allow-only approach. Option D (Permit listing):This is the best fit, as it proactively enforces a policy where only explicitly authorized applications can run, preventing malware introduced by unauthorized software. Reference:CompTIA SecurityX CAS-005 Domain 2: Security Architecture – Application Security Controls.

Question: 163

[Security Architecture]
An organization is developing a disaster recovery plan that requires data to be backed up and available at a moment's notice. Which of the following should the organization consider first to address this requirement?

A. Implement a change management plan to ensure systems are using the appropriate versions.
B. Hire additional on-call staff to be deployed if an event occurs.
C. Design an appropriate warm site for business continuity.
D. Identify critical business processes and determine associated software and hardware requirements.

Answer: D

Explanation:

For a disaster recovery (DR) plan requiring immediate data availability, the first step is understanding what needs to be protected and recovered. Identifying critical business processes and their associated software and hardware requirements establishes the foundation for the DR plan. This ensures that backups and recovery mechanisms align with business priorities, meeting the "moment's notice" requirement.
Option A:A change management plan is important for system consistency but doesn't directly address immediate data availability in a DR context.

Option B:Hiring staff supports execution but doesn't define what needs to be recovered or how. It's a later step.
Option C:A warm site (a partially operational backup site) is a good DR solution, but designing it comes after identifying critical processes and resources.
Option D:This is the first step in any DR planning process—knowing what's critical ensures the plan meets availability goals efficiently.
Reference:CompTIA SecurityX CAS-005 Domain 4: Cybersecurity Operations – Disaster Recovery and Business Continuity Planning.

Question: 164

[Security Engineering and Cryptography]
A technician is reviewing the logs and notices a large number of files were transferred to remote sites over the course of three months. This activity then stopped. The files were transferred via TLS- protected HTTP sessions from systems that do not normally send traffic to those sites. The technician will define this threat as:

A. A decrypting RSA using an obsolete and weakened encryption attack.
B. A zero-day attack.
C. An advanced persistent threat.
D. An on-path attack.

Answer: C

Explanation:

The scenario describes a prolonged, stealthy operation where files were exfiltrated over three months via secure channels (TLS-protected HTTP) from unexpected systems, then ceased. This aligns with anAdvanced Persistent Threat (APT), characterized by long-term, targeted attacks aimed at data theft or surveillance, often using sophisticated methods to remain undetected.
Option A:Decrypting RSA with weak encryption implies a cryptographic attack, but TLS suggests modern encryption was used, and there's no evidence of decryption here.
Option B:A zero-day attack exploits unknown vulnerabilities, but the duration and cessation suggest a planned operation, not a single exploit.
Option C:APT fits perfectly—slow, persistent exfiltration fromunusual systems indicates a coordinated, stealthy threat actor.
Option D:An on-path (man-in-the-middle) attack intercepts traffic, but there's no indication of interception; the focus is on unauthorized transfers.
Reference:CompTIA SecurityX CAS-005 Domain 1: Risk Management – Threat Identification and Analysis.

Question: 165

[Emerging Technologies and Threats]
Due to locality and budget constraints, an organization's satellite office has a lower bandwidth allocation than other offices. As a result, the local securityinfrastructure staff is assessing architectural options that will help preserve network bandwidth and increase speed to both internal and external resources while not sacrificing threat visibility.
Which of the following would be the best option to implement?

A. Distributed connection allocation
B. Local caching
C. Content delivery network
D. SD-WAN vertical heterogeneity

Answer: B

Explanation:

The goal is to optimize bandwidth, increase speed, and maintain threat visibility in a low-bandwidth satellite office.Local cachingstores frequently accessed data locally, reducing bandwidth usage by minimizing repeated requests to external or internal resources. It speeds up access and doesn't inherently reduce security visibility if paired with monitoring tools.

Option A:Distributed connection allocation might balance traffic but doesn't directly reduce bandwidth usage or speed up access.

Option B:Local caching is ideal—reduces bandwidth, improves performance, and maintains visibility with proper security controls.

Option C:A CDN is great for external content delivery but less relevant for internal resources and doesn't inherently address threat visibility.

Option D:SD-WAN improves WAN performance, but "vertical heterogeneity" is vague and not a standard term; it's less tailored to this scenario than caching.

Reference:CompTIA SecurityX CAS-005 Domain 2: Security Architecture – Network Optimization and Security.

Question: 166

[Security Architecture]

Which of the following supports the process of collecting a large pool of behavioral observations to inform decision-making?

A. Linear regression
B. Distributed consensus
C. Big Data
D. Machine learning

Answer: C

Explanation:

Collecting a large pool of behavioral observations requires handling vast datasets, which is the domain ofBig Data. Big Data technologies enable the storage, processing, and analysis of large-scale data (e.g., user behavior logs) to inform decisions, a key capability in security analytics.

Option A:Linear regression is a statistical method for modeling relationships, not collecting data.

Option B:Distributed consensus relates to agreement in distributed systems (e.g., blockchain), not data collection.

Option C:Big Data directly supports collecting and analyzing large datasets for insights, fitting the question

perfectly.

Option D:Machine learning uses data to train models but relies on data being collected first, often via Big Data.
Reference:CompTIA SecurityX CAS-005 Domain 3: Research, Development, and Collaboration – Data Analytics for Security.

Question: 167

[Security Architecture]
A security analyst is using data provided from a recent penetration test to calculate CVSS scores to prioritize remediation. Which of the following metric groups would the analyst need to determine to get the overall scores? (Select three).

A. Temporal
B. Availability
C. Integrity
D. Confidentiality
E. Base
F. Environmental
G. Impact
H. Attack vector

Answer: A,E,F

Explanation:

The Common Vulnerability Scoring System (CVSS) v3.1 uses three metric groups to calculate overall scores:Base,Temporal, andEnvironmental.
Base (E):Mandatory metrics assessing exploitability (e.g., attack vector) and impact (confidentiality, integrity, availability).
Temporal (A):Optional metrics reflecting the current state of the vulnerability (e.g., exploit availability, remediation level).
Environmental (F):Optional metrics tailoring the score to the organization's context (e.g., security requirements).
B, C, D (Availability, Integrity, Confidentiality):These are subcomponents of the Base Impact metrics, not standalone groups.
G (Impact):A categorywithin Base, not a group.
H (Attack vector):A single Base metric, not a group.
Reference:CompTIA SecurityX CAS-005 Domain 1: Risk Management – Vulnerability Assessment and Prioritization.

Question: 168

[Security Architecture]
An analyst has prepared several possible solutions to a successful attack on the company. The solutions need to be implemented with the least amount of downtime. Which of the following should the analyst perform?

A. Implement all the solutions at once in a virtual lab and then run the attack simulation. Collect the metrics and then choose the best solution based on the metrics.

B. Implement every solution one at a time in a virtual lab, running a metric collection each time. After the collection, run the attack simulation, roll back each solution, and then implement the next. Choose the best solution based on the best metrics.

C. Implement every solution one at a time in a virtual lab, running an attack simulation each time while collecting metrics. Roll back each solution and then implement the next. Choose the best solution based on the best metrics.

D. Implement all the solutions at once in a virtual lab and then collect the metrics. After collection, run the attack simulation. Choose the best solution based on the best metrics.

Answer: C

Explanation:

To minimize downtime, testing should occur in a virtual lab, not production. The best approach is to test solutions methodically: implement one solution at a time, run an attack simulation, collect metrics, roll back, and repeat. This isolates each solution's effectiveness, ensuring accurate metrics for decision-making without production impact.

Option A:Testing all solutions simultaneously muddies the results—metrics won't show which solution worked.
Option B:Collecting metrics before the simulation misses the point of testing against the attack. Option C:Correct—tests each solution independently with simulation and metrics, minimizing downtime via virtual lab use.
Option D:Like A, combining solutions obscures individual effectiveness.

Reference:CompTIA SecurityX CAS-005 Domain 4: Cybersecurity Operations – Incident Response and Testing.

Question: 169

[Security Architecture]
An organization is researching the automation capabilities for systems within an OT network. A security analyst wants to assist with creating secure coding practices and would like to learn about the programming languages used on the PLCs. Which of the following programming languages is the most relevant for PLCs?

A. Ladder logic
B. Rust
C. C
D. Python
E. Java

Answer: A

Explanation:

Programmable Logic Controllers (PLCs) in Operational Technology (OT) environments commonly useLadder Logic, a graphical programming language resembling electrical relay logic diagrams. It's the most relevant for PLCs due to its widespread use in industrial automation.

Option A:Ladder Logic is the standard for PLC programming, making it the best choice.
Option B:Rust is modern and secure but not typically used for PLCs.
Option C:C is used in some embedded systems but less common for PLCs.

Option D:Python is versatile but not native to PLC programming.
Option E:Java is rare in PLC contexts.
Reference:CompTIA SecurityX CAS-005 Domain 2: Security Architecture – OT Security and Secure Coding.

Question: 170

[Security Engineering and Cryptography]
A security engineer is implementing a code signing requirement for all code developed by the organization. Currently, the PKI only generates website certificates. Which of the following steps should the engineer perform first?

A. Add a new template on the internal CA with the correct attributes.
B. Generate a wildcard certificate for the internal domain.
C. Recalculate a public/private key pair for the root CA.
D. Implement a SAN for all internal web applications.

Answer: A

Explanation:

To enable code signing with an existing PKI, the first step is to configure the Certificate Authority (CA) to issue code signing certificates. Adding a new template with attributes specific to code signing (e.g., key usage for signing) allows the CA to support this requirement without disrupting existing operations.
Option A:Correct—templates define certificate types; this isthe foundational step.
Option B:Wildcard certificates are for domains, not code signing.
Option C:Recalculating root CA keys is unnecessary and risky unless compromised.
Option D:SAN (Subject Alternative Name) is for multi-domain certificates, irrelevant here.
Reference:CompTIA SecurityX CAS-005 Domain 2: Security Architecture – PKI Implementation.

Question: 171

[Security Architecture]
Which of the following are risks associated with vendor lock-in? (Select two).

A. The client can seamlessly move data.
B. The vendor canchange product offerings.
C. The client receives a sufficient level of service.
D. The client experiences decreased quality of service.
E. The client can leverage a multicloud approach.
F. The client experiences increased interoperability.

Answer: B,D

Explanation:

Vendor lock-in occurs when a client is overly dependent on a vendor, limiting flexibility. Risks include: Option B:Vendors changing offerings (e.g., features, pricing) can disrupt the client, a key lock-in risk. Option D:Decreased

quality of service may result from reliance on a single vendor without alternatives.

Option A:Seamless data movement is a benefit, not a risk.

Option C:Sufficient service is neutral or positive, not a risk.

Option E:Multicloud is hindered by lock-in, not a risk of it.

Option F:Increased interoperability contradicts lock-in's limitations.

Reference:CompTIA SecurityX CAS-005 Domain 1: Risk Management – Vendor Risk Assessment.

Question: 172

[Governance, Risk, and Compliance (GRC)]

An auditor is reviewing the logs from a web application to determine the source of an incident. The web application architecture includes an internet-accessible application load balancer, a number of web servers in a private subnet, application servers, and one database server in a tiered configuration. The application load balancer cannot store the logs. The following are sample log snippets:

Web server logs:

192.168.1.10 - -
[24/Oct/2020 11:24:34 +05:00] "GET /bin/bash" HTTP/1.1" 200 453 Safari/536.36
192.168.1.10 - -
[24/Oct/2020 11:24:35 +05:00] "GET / HTTP/1.1" 200 453 Safari/536.36

Application server logs:

24/Oct/2020 11:24:34 +05:00 - 192.168.2.11 - request does not match a known local user. Querying DB
24/Oct/2020 11:24:35 +05:00 - 192.168.2.12 - root path. Begin processing

Database server logs:

24/Oct/2020 11:24:34 +05:00
[Warning] 'option read_buffer_size1 unassigned value 0 adjusted to 2048

24/Oct/2020 11:24:35 +05:00
[Warning] CA certificate ca.pem is self-signed.

Which of the following should the auditor recommend to ensure future incidents can be traced back to the sources?

A. Enable the X-Forwarded-For header at the load balancer.
B. Install a software-based HIDS on the application servers.
C. Install a certificate signed by a trusted CA.
D. Use stored procedures on the database server.
E. Store the value of the $_SERVER ['REMOTE_ADDR'] received by the web servers.

Answer: A

Explanation:

The issue is tracing the original source of requests in a tiered architecture with a load balancer. The web server logs show internal IPs (192.168.1.10), not the external client IPs, because the load balancer forwards requests without preserving the source. Enabling theX-Forwarded-Forheader on the load balancer adds the client's original IP to the HTTP request headers, allowing downstream servers to log it. This ensures traceability without altering the architecture significantly.

Option A:Correct—X-Forwarded-For is the standard solution for preserving client IPs through load balancers.

Option B:A Host-based Intrusion Detection System (HIDS) detects anomalies but doesn't address IP traceability.

Option C:A trusted CA certificate fixes the self-signed warning but is unrelated to source tracking. Option D:Stored procedures improve database security but don't help with IP logging.
Option E:Storing $_SERVER
['REMOTE_ADDR'] captures the loadbalancer's IP, not the client's, unless X-Forwarded-For is enabled.
Reference:CompTIA SecurityX CAS-005 Domain 4: Cybersecurity Operations – Log Analysis and Incident Investigation.

Question: 173

[Security Architecture]
An organization is prioritizing efforts to remediate or mitigate risks identified during the latest assessment. For one of the risks, a full remediation was not possible, but the organization was able to successfully apply mitigations to reduce the likelihood of the impact. Which of the following should the organization perform next?

A. Assess the residual risk.
B. Update the organization's threat model.
C. Move to the next risk in the register.
D. Recalculate the magnitude of the impact.

Answer: A

Explanation:

After applying mitigations that reduce the likelihood of a risk's impact, the next step is toassess the residual risk—the risk that remains after controls are implemented. This ensures the organization understands if the mitigation is sufficient or if further action is needed, aligning with risk management best practices.

Option A:Correct—residual risk assessment is the logical next step to evaluate the effectiveness of mitigations.
Option B:Updating the threat model might follow but isn't immediate; residual risk comes first.
Option C:Moving to the next risk skips evaluating the current mitigation's success.
Option D:Recalculating impact magnitude is part of residual risk assessment but isn't the full process.
Reference:CompTIA SecurityX CAS-005 Domain 1: Risk Management – Risk Mitigation and Residual Risk Analysis.

Question: 174

[Security Assessments and Testing]
A security analyst is reviewing the following vulnerability assessment report:
192.168.1.5, Host = Server1, CVSS 7.5, Web Server, Remotely Executable = Yes, Exploit = Yes
192.168.1.6, Host = Server2, CVSS 6.5, Bind Server, Remotely Executable = Yes, Exploit = POC
207.1.5.7, Host = Server3, CVSS 5.5, Email Server, Remotely Executable = Yes, Exploit = Yes 192.168.1.6, Host = Server4, CVSS 9.8, Domain Controller, Remotely Executable = Yes, Exploit = Yes Which of the following should be patched first to minimize attacks against internet-facing hosts?

A. Server1
B. Server2
C. Server3
D. Server4

Answer: B

Explanation:

The question focuses oninternet-facing hosts, implying external exposure. CVSS scores, remote executability, and exploitavailability guide prioritization. Server2 (205.1.3.5, CVSS 6.5, Bind Server) has a public IP, suggesting it's internet-facing, unlike Server1 and Server4 (192.168.x.x, private IPs). Server3 (207.1.5.7, CVSS 5.5) is also public but has a lower score and risk compared to Server2's proof-of-concept (POC) exploit. Server2's Bind Server (DNS) role is critical and commonly targeted, making it the priority.

Option A:Server1 (CVSS 7.5) is private, not internet-facing.

Option B:Server2 (CVSS 6.5) is internet-facing with an exploit POC, warranting immediate patching.

Option C:Server3 (CVSS 5.5) is internet-facing but less severe.

Option D:Server4 (CVSS 9.8) is critical but private, not internet-facing.

Reference:CompTIA SecurityX CAS-005 Domain 1: Risk Management – Vulnerability Prioritization.

Question: 175

[Security Engineering and Cryptography]

PKI can be used to support security requirements in the change management process. Which of the following capabilities does PKI provide for messages?

A. Non-repudiation
B. Confidentiality
C. Delivery receipts
D. Attestation

Answer: A

Explanation:

Public Key Infrastructure (PKI) supports change management by securing messages (e.g., approvals, updates).Non-repudiation, provided via digital signatures, ensures a sender cannot deny sending a message, critical for auditability in change processes.

Option A:Correct—PKI's digital signatures ensure non-repudiation.

Option B:Confidentiality (via encryption) is a PKI feature but less tied to change management's focus on accountability.

Option C:Delivery receipts are not aPKI function; they're protocol-specific (e.g., SMTP).

Option D:Attestation relates to verifying attributes, not a direct PKI message capability.

Reference:CompTIA SecurityX CAS-005 Domain 2: Security Architecture – PKI and Secure Processes.

Question: 176

[Security Operations]

A user from the sales department opened a suspicious file attachment. The sales department then contacted the SOC to investigate a number of unresponsive systems, and the team successfully identified the file and the origin of the attack. Which of the following is the next step of the incident response plan?

A. Remediation
B. Containment
C. Response
D. Recovery

Answer: B

Explanation:

Incident response follows a standard process (e.g., NIST 800-61): Preparation, Identification, Containment, Eradication, Recovery, Lessons Learned. After identifying the attack (file and origin), the next step isContainment—limiting the spread or impact (e.g., isolating systems) before remediation or recovery.

Option A:Remediation (fixing the root cause) follows containment.

Option B:Correct—containment prevents further damage post-identification.

Option C:"Response" is too vague; it encompasses all steps.

Option D:Recovery (restoring systems) comes after containment and eradication.

Reference:CompTIA SecurityX CAS-005 Domain 4: Cybersecurity Operations – Incident Response Lifecycle.

Question: 177

[Emerging Technologies and Threats]

A security analyst is performing a review of a web application. During testing as a standard user, the following error log appears:

Error Message in Database Connection
Connection to host USA-WebApp-Database failed
Database "Prod-DB01" not found
Table "CustomerInfo" not found
Please retry your request later

Which of the following best describes the analyst's findings and a potential mitigation technique?

A. The findingsindicate unsecure references. All potential user input needs to be properly sanitized.
B. The findings indicate unsecure protocols. All cookies should be marked as HttpOnly.
C. The findings indicate information disclosure. The displayed error message should be modified.
D. The findings indicate a SQL injection. The database needs to be upgraded.

Answer: C

Explanation:

The error message reveals sensitive details (hostnames, database names, table names), constitutinginformation disclosure. This aids attackers in reconnaissance. Mitigation involves modifying the application to display generic error messages (e.g., "An error occurred") instead of specifics.

Option A:Unsecure references suggest coding flaws, but this is a configuration/output issue, not input sanitization.

Option B:Unsecure protocols and HttpOnly cookies relate to session security, not error handling. Option C:Correct—information disclosure is the issue; generic errors mitigate it.

Option D:No evidence of SQL injection (e.g., manipulated input); upgrading the database doesn't address

disclosure.

Reference:CompTIA SecurityX CAS-005 Domain 2: Security Architecture – Secure Application Design and Error Handling.

Question: 178

[Governance, Risk, and Compliance (GRC)]

A company wants to improve and automate the compliance of its cloud environments to meet industry standards. Which of the following resources should the company use to best achieve this goal?

A. Jenkins
B. Python
C. Ansible
D. PowerShell

Answer: C

Explanation:

Comprehensive and Detailed

Automating compliance in cloudenvironments requires a tool that can enforce configurations, manage infrastructure as code, and align with industry standards (e.g., NIST, ISO). Let's evaluate: A . Jenkins:A CI/CD tool for automating software builds and deployments. It's not designed for compliance enforcement or infrastructure management.

B . Python:A programming language that can be scripted for automation but lacks built-in compliance-focused features without significant custom development.

C . Ansible:An automation tool for configuration management, application deployment, and compliance enforcement. It uses playbooks to define desired states, making it ideal for automating compliance checks and remediation in cloud environments (e.g., AWS, Azure). CAS-005 emphasizes automation tools for security and compliance, and Ansible fits perfectly.

Reference:CompTIA SecurityX (CAS-005) objectives, Domain 3: Security Engineering and Cryptography, focusing on automation for compliance in cloud environments.

Question: 179

[Governance, Risk, and Compliance (GRC)]

A security architect is mitigating a vulnerability that previously led to a web application data breach.

An analysis into the root cause of the issue finds the following:

An administrator's account was hijacked and used on several Autonomous System Numbers within 30 minutes.

All administrators use named accounts that require multifactor authentication.

Single sign-on is used for all company applications.Which of the following should the security architect do to mitigate the issue?

A. Configure token theft detection on the single sign-on system with automatic account lockouts.
B. Enable context-based authentication when network locations change on administrator login attempts.
C. Decentralize administrator accounts and force unique passwords for each application.
D. Enforce biometric authentication requirements for the administrator's named accounts.

Answer: B

Explanation:

Comprehensive and Detailed
The hijacked administrator account was used across multiple ASNs (indicating different network locations) in a short time, despite MFA and SSO. This suggests a stolen session or token misuse. Let's analyze:
A . Token theft detection with lockouts:Useful for detecting stolen SSO tokens, but it's reactive and may not prevent initial misuse across networks.
B . Context-based authentication:This adds real-time checks (e.g., geolocation, IP changes) to verify login attempts. Given the rapid ASN changes, this proactively mitigates the issue by challenging suspicious logins, aligning with CAS-005's focus on adaptive security.
C . Decentralize accounts:This removes SSO, increasing complexity and weakening MFA enforcement, which isn't practical or secure.
Reference:CompTIA SecurityX (CAS-005) objectives, Domain 2: Security Operations, emphasizing context-aware authentication for SSO environments.

Question: 180

[Governance, Risk, and Compliance (GRC)]
An organization currently has IDS, firewall, and DLP systems in place. The systems administrator needs to integrate the tools in the environment to reduce response time. Which of the following should the administrator use?

A. SOAR
B. CWPP
C. XCCDF
D. CMDB

Answer: A

Explanation:

Comprehensive and Detailed
Integrating IDS, firewall, and DLP to reduce response time requires orchestration and automation.
Let's evaluate:
A . SOAR(Security Orchestration, Automation, and Response):SOAR integrates security tools, automates workflows, and speeds up incident response. It's the best fit for this scenario, as CAS-005 highlights SOAR for operational efficiency.
B . CWPP (CloudWorkload Protection Platform):Focused on securing cloud workloads, not integrating on-premises tools.
C . XCCDF (Extensible Configuration Checklist Description Format):A standard for compliance checklists, not a tool for integration or response.
Reference:CompTIA SecurityX (CAS-005) objectives, Domain 2: Security Operations, focusing on SOAR for tool integration.

Question: 181

[Security Architecture]
A global organization wants to manage all endpoint and user telemetry. The organization also needs to differentiate this data based on which office it is correlated to. Which of the following strategies best aligns with this goal?

A. Sensor placement
B. Data labeling
C. Continuous monitoring
D. Centralized logging

Answer: B

Explanation:

Comprehensive and Detailed
Managing telemetry and differentiating it by office requires a way to categorize data. Let's evaluate: A . Sensor placement:Useful for data collection but doesn't inherently differentiate by office.
B . Data labeling:Assigns metadata (e.g., office location) to telemetry, enabling differentiation. This aligns with CAS-005's focus on data management for security operations.
C . Continuous monitoring:Ensures ongoing data collection but doesn't address differentiation. Reference:CompTIA SecurityX (CAS-005) objectives, Domain 2: Security Operations, emphasizing telemetry management.

Question: 182

[Security Architecture]
A company that uses several cloud applications wants to properly identify:
All the devices potentially affected by a given vulnerability.
All the internal servers utilizing the same physical switch.
The number of endpoints using a particular operating system.Which of the following is the best way to meet the requirements?

A. SBoM
B. CASB
C. GRC
D. CMDB

Answer: D

Explanation:

Comprehensive and Detailed
The requirements demand detailed asset tracking and inventory management. Let's analyze:
A . SBoM (Software Bill of Materials):Tracks software components, not hardware or network topology.
B . CASB (Cloud Access Security Broker):Secures cloud apps but doesn't map physical switches or OS counts.

C . GRC(Governance, Risk, and Compliance):Focuses on risk management, not detailed asset tracking.

Reference:CompTIA SecurityX (CAS-005) objectives, Domain 4: Governance, Risk, and Compliance, covering asset management.

Question: 183

[Security Architecture]

A senior security engineer flags the following log file snippet as having likely facilitated an attacker's lateral movement in a recent breach:

qry_source: 19.27.214.22 TCP/53
qry_dest: 199.105.22.13 TCP/53
qry_type: AXFR
| in comptia.org
----------directoryserveri A 10.80.8.10
----------directoryserver2 A 10.80.8.11
----------directoryserver3 A 10.80.8.12
---------- internal-dns A 10.80.9.1
---------- www-int A 10.80.9.3
----------fshare A 10.80.9.4
----------sip A 10.80.9.5
---------- msn-crit-apcs A 10.81.22.33

Which of the following solutions, if implemented, would mitigate the risk of this issue reoccurring?

A. Disabling DNS zone transfers
B. Restricting DNS traffic to UDP/53
C. Implementing DNS masking on internal servers
D. Permitting only clients from internal networks to query DNS

Answer: A

Explanation:

Comprehensive and Detailed

The log shows an AXFR (zone transfer) query, which exposed internal DNS records, aiding lateral movement. Let's evaluate:

A . Disabling DNS zone transfers:AXFR allows full DNS zone data to be transferred. Disabling it externally prevents attackers from mapping internal networks, directly mitigating this issue per CAS- 005's security operations focus.

B . Restricting to UDP/53:AXFR uses TCP/53, so this wouldn't stop it.

C . DNSmasking:Obscures records but isn't a standard term for this fix.

Reference:CompTIA SecurityX (CAS-005) objectives, Domain 2: Security Operations, covering DNS security.

Question: 184

[Emerging Technologies and Threats]

After a penetration test on the internal network, the following report was generated:

Attack Target Result

Compromised host ADMIN01S.CORP.LOCAL Successful

Hash collected KRBTGT.CORP.LOCAL Successful

Hash collected SQLSV.CORP.LOCAL Successful

Pass the hash SQLSV.CORP.LOCAL Failed

Domain control CORP.LOCAL Successful

Which of the following should be recommended to remediate the attack?

A. Deleting SQLSV
B. Reimaging ADMIN01S
C. Rotating KRBTGT password
D. Resetting the local domain

Answer: C

Explanation:

Comprehensive and Detailed

The attacker gained domain control by collecting the KRBTGT hash (used for Kerberos tickets). Let's evaluate:

A . Deleting SQLSV:Irrelevant since pass-the-hash failed there.

B . Reimaging ADMIN01S:Addresses the compromised host but not domain control.

C . Rotating KRBTGT password:Invalidates stolen Kerberos tickets, mitigating domain control per CAS- 005's focus on identity security.

Reference:CompTIA SecurityX (CAS-005) objectives, Domain 2: Security Operations, covering Kerberos security.

Question: 185

[Security Architecture]

After several companies in the financial industry were affected by a similar incident, they shared information about threat intelligence and the malware used for exploitation. Which of the following should the companies do to best indicate whether the attacks are being conducted by the same actor?

A. Apply code stylometry.
B. Look for common IOCs.
C. Use IOC extractions.
D. Leverage malware detonation.

Answer: A

Explanation:

Comprehensive and Detailed

Determining if attacks are from the same actor requires unique attribution. Let's analyze:

A . Code stylometry:Analyzes coding style to identify authorship, the best method for linking malware to a specific actor per CAS-005's threat intelligence focus.

B . Common IOCs:Indicates similar attacks but not necessarily the same actor.

C . IOCextractions:Similar to B, lacks specificity for attribution.

Reference:CompTIA SecurityX (CAS-005) objectives, Domain 2: Security Operations, covering threat intelligence.

Question: 186

[Security Operations]

An external threat actor attacks public infrastructure providers. In response to the attack and during follow-up activities, various providers share information obtained during response efforts. After the attack, energy sector companies share their status and response data:

Company	SIEM	UEBA	DLP	ISAC Member	TIP Integration	Time to Detect	Time to Respond
1	Yes	No	Yes	Yes	Yes	10 minutes	20 minutes
2	Yes	Yes	Yes	Yes	No	20 minutes	40 minutes
3	Yes	Yes	No	No	Yes	12 minutes	24 minutes

Which of thefollowing is the most important issue to address to defend against future attacks?

A. Failure to implement a UEBA system
B. Failure to implement a DLP system
C. Failure to join the industry ISAC
D. Failure to integrate with the TIP

Answer: C

Explanation:

The data provided shows that all companies have SIEM systems, but they differ in their implementation of UEBA, DLP, ISAC membership, and TIP integration. The key metric to evaluate is the effectiveness in detecting and responding to attacks, as shown by the "Time to Detect" and "Time to Respond" columns. Company 1, which is an ISAC member, has the fastest detection (10 minutes) and response (20 minutes) times. Company 3, which is not an ISAC member, has slower detection (12 minutes) and response (24 minutes) times, despite having UEBA and TIP integration. Company 2, which lacks TIP integration but is an ISAC member, has the slowest times (20 minutes to detect, 40 minutes to respond). This suggests that ISAC membership correlates with faster detection and response, likely due to access to shared threat intelligence.

According to the CompTIA SecurityX CAS-005 objectives (Domain 2: Security Operations, 2.2), Information Sharing and Analysis Centers (ISACs) are critical for enabling organizations to share realtimethreat intelligence within their industry. ISACs provide access to actionable intelligence, best practices, and coordinated response strategies, which are essential for defending against sophisticated attacks targeting critical infrastructure like the energy sector. The lack of ISAC membership (Company 3) limits access to this intelligence, hindering proactive defense and response capabilities. While UEBA, DLP, and TIP integration are valuable, they are more focused on internal monitoring, data protection,and individual threat intelligence feeds, respectively, and do not provide the same industry-wide collaboration as an ISAC.

Reference:

CompTIA SecurityX CAS-005 Official Study Guide, Domain 2: Security Operations, Section 2.2: "Explain the importance of threat intelligence sharing and collaboration, including ISACs." CAS-005 Exam Objectives, 2.2: "Analyze the impact of information sharing on incident response efficiency."

Question: 187

[Security Engineering and Cryptography]

Which of the following best describes the challengesassociated with widespread adoption of homomorphic encryption techniques?

A. Incomplete mathematical primitives
B. No use cases to drive adoption
C. Quantum computers not yet capable
D. Insufficient coprocessor support

Answer: D

Explanation:

Homomorphic encryption allows computations to be performed on encrypted data without decrypting it, preserving confidentiality. However, its adoption faces significant challenges due to performance overhead. According to the CompTIA SecurityX CAS-005 study materials (Domain 3: Cybersecurity Technology, 3.3), homomorphic encryption requires substantial computational resources, which standard processors struggle to provide efficiently. Specialized hardware, such as coprocessors (e.g., GPUs or TPUs), is oftenneeded to handle the complex mathematical operations involved. The lack of widespread, optimized coprocessor support in existing infrastructure is a primary barrier to adoption.

Option A (Incomplete mathematical primitives):While early homomorphic encryption schemes had limitations,

modern schemes (e.g., CKKS, BFV) have mature mathematical foundations, making this less of a challenge today.

Option B (No use cases):Use cases exist, such as secure cloud computing and privacy-preserving data analytics, so this is not accurate.

Option C (Quantum computers):Homomorphic encryption is not dependent on quantum computing, and quantum computers are unrelated to its current challenges.

Option D (Insufficient coprocessor support):This is the most accurate, as performance bottlenecks require specialized hardware that is not yet widely available or integrated.

Reference:

CompTIA SecurityX CAS-005 Official Study Guide, Domain 3: Cybersecurity Technology, Section 3.3: "Evaluate emerging cryptographic technologies, including homomorphic encryption challenges." CAS-005 Exam Objectives, 3.3: "Analyze barriers to adopting advanced encryption techniques."

Question: 188

[Security Architecture]

Which of the following best describes the reason a network architect would enable forward secrecy on all VPN tunnels?

A. This process is a requirement to enable hardware-accelerated cryptography.
B. This process reduces the success of attackers performing cryptanalysis.
C. The business requirements state that confidentiality is a critical success factor.
D. Modern cryptographic protocols list this process as a prerequisite for use.

Answer: B

Explanation:

Forward secrecy (also known as perfect forward secrecy, PFS) ensures that session keys used in a VPN tunnel are ephemeral, meaning that even if an attacker compromises a long-term private key, past sessions cannot be decrypted. According to the CompTIA SecurityX CAS-005 study guide (Domain 3: Cybersecurity Technology, 3.1), enabling forward secrecy on VPN tunnels reduces the risk of cryptanalysis by ensuring that each session's encryption key is unique and not derived from a single

compromised key. This directly mitigates the impact of attacks like key theft or future decryption attempts.

Option A:Forward secrecy is not required for hardware-accelerated cryptography, which depends on processor capabilities, not key management.

Option C:While confidentiality is important, this is too vague and does not specifically explain why forward secrecy is chosen.

Option D:Modern protocols (e.g., TLS 1.3, IPsec with ECDHE) support forward secrecy but donot mandate it as a prerequisite for use.

Option B:This is the most precise, as forward secrecy directly reduces the success of cryptanalysis by limiting the scope of key compromise.

Reference:

CompTIA SecurityX CAS-005 Official Study Guide, Domain 3: Cybersecurity Technology, Section 3.1: "Explain cryptographic techniques, including perfect forward secrecy."

CAS-005 Exam Objectives, 3.1: "Evaluate the impact of cryptographic configurations on security."

Question: 189

[Security Architecture]
A security engineer must ensure that sensitive corporate information is not exposed if a company laptop is stolen. Which of the following actions best addresses this requirement?

A. Utilizing desktop as a service for all company data and multifactor authentication
B. Using explicit allow lists of specific IP addresses and deploying single sign-on
C. Deploying mobile device management and requiring stronger passwords
D. Updating security mobile reporting policies and monitoring data breaches

Answer: A

Explanation:

To prevent sensitive corporate information from being exposed if a laptop is stolen, the solution must ensure that data is not stored locally and access is tightly controlled. According to the CompTIA SecurityX CAS-005 study guide (Domain 4: Governance, Risk, and Compliance, 4.3), Desktop as a Service (DaaS) hosts data and applications in the cloud, reducing the risk of data exposure on physical devices. Combining DaaS with multifactor authentication (MFA) ensures that even if a laptop is stolen, unauthorized access to the cloud environment is prevented.
Option B:IP allow lists and SSO do not address data stored locally on the laptop, which could be accessed ofline.
Option C:MDM and stronger passwords help but do not prevent data exposure if the device is compromised (e.g., via ofline attacks).
Option D:Updating policies and monitoring breaches are reactive measures that do not directly protect data on a stolen laptop.
Option A:DaaS ensures no sensitive data resides on the device, and MFA secures access, making it the best solution.
Reference:
CompTIA SecurityX CAS-005 Official Study Guide, Domain 4: Governance, Risk, and Compliance, Section 4.3: "Implement secure data handling through cloud-based solutions like DaaS."
CAS-005 Exam Objectives, 4.3: "Analyze solutions for protectingsensitive data on endpoints."

Question: 190

[Emerging Technologies and Threats]
A global company's Chief Financial Officer (CFO) receives a phone call from someone claiming to be the Chief Executive Officer (CEO). The caller claims to be stranded and in desperate need of money. The CFO is suspicious, but the caller's voice sounds similar to the CEO's. Which of the following best describes this type of attack?

A. Smishing
B. Deepfake
C. Automated exploit generation
D. Spear phishing

Answer: B

Explanation:

This scenario describes an attack where the attacker mimics the CEO's voice to deceive the CFO, likely using AI-generated audio. According to the CompTIA SecurityX CAS-005 study guide (Domain 1: Security Strategy and Risk Management, 1.2), a deepfake attack involves using artificial intelligence to create realistic but fake audio, video, or other media to impersonate someone. In this case, the voice similarity suggests a deepfake audio attack, which is a targeted social engineering tactic.

Option A:Smishing involves SMS-based phishing, not voicecalls.

Option C:Automated exploit generation refers to creating software exploits, not impersonation. Option D:Spear phishing targets specific individuals but typically via email, not voice-based impersonation.

Option B:Deepfake is the most accurate, as it describes AI-driven impersonation of the CEO's voice. Reference:

CompTIA SecurityX CAS-005 Official Study Guide, Domain 1: Security Strategy and Risk Management, Section 1.2: "Identify advanced social engineering attacks, including deepfakes."

CAS-005 Exam Objectives, 1.2: "Analyze the impact of AI-based attacks on security."

Question: 191

[Emerging Technologies and Threats]

A cloud engineer wants to configure mail security protocols to support email authenticity and enable the flow of email security information to a third-party platform for further analysis. Which of the following must be configured to achieve these requirements? (Select two).

A. DMARC
B. DKIM
C. TLS
D. SPF
E. DNSSEC
F. MX

Answer: A,B

Explanation:

To support email authenticity and enable analysis by a third-party platform, the protocols must verify the sender's identity and provide metadata for inspection. According to the CompTIA SecurityX CAS- 005 study guide (Domain 3: Cybersecurity Technology, 3.2):

DMARC (Domain-based Message Authentication, Reporting, and Conformance):DMARC builds on SPF and DKIM to enforce policies for email authenticity and provides reporting mechanisms to share authentication results with third parties for analysis.

DKIM (DomainKeys Identified Mail):DKIM adds a cryptographic signature to emails, allowing recipients to verify the sender's domain and ensure the email's integrity.

These two protocols are essential for authenticity and reporting.

Option C (TLS):TLS ensures encryption during transmission but does not address authenticity or reporting.

Option D (SPF):SPF verifies sender IP addresses but lacks reporting capabilities without DMARC.

Option E (DNSSEC):DNSSEC secures DNS queries but is not specific to email authenticity.
Option F (MX):MX records define mail servers, not authenticity or reporting.
Reference:
CompTIA SecurityX CAS-005 Official Study Guide, Domain 3: Cybersecurity Technology, Section 3.2: "Configure email security protocols, including DMARC and DKIM."
CAS-005 Exam Objectives, 3.2: "Implement technologies for email security and authenticity."

Question: 192

[Security Architecture]
A company is preparing to move a new version of a web application to production. No issues were reported during security scanning or quality assurance in the CI/CD pipeline. Which of the following actions should thecompany take next?

A. Merge the test branch to the main branch
B. Perform threat modeling on the production application
C. Conduct unit testing on the submitted code
D. Perform a peer review on the test branch

Answer: A

Explanation:

The question states that security scanning and quality assurance (QA) in the CI/CD pipeline have been completed with no issues, indicating that the code in the test branch is ready for production. According to the CompTIA SecurityX CAS-005 study guide (Domain 2: Security Operations, 2.3), in a secure CI/CD pipeline, once code passes automated security scans, QA, and other checks (e.g., unit
testing, peer reviews), the next step is to merge the tested branch into the main branch for deployment to production.
Option B:Threat modeling is typically performed earlier, during design or development, not after passing CI/CD checks.
Option C:Unit testing is part of the CI/CD pipeline and should already be completed.
Option D:Peer reviews are conducted before or during the test phase, not after QAand security scans are clear.
Option A:Merging the test branch to the main branch is the logical next step to prepare for production deployment.
Reference:
CompTIA SecurityX CAS-005 Official Study Guide, Domain 2: Security Operations, Section 2.3:
"Manage secure software development lifecycles, including CI/CD pipelines."
CAS-005 Exam Objectives, 2.3: "Analyze secure deployment processes in CI/CD environments."

Question: 193

[Security Architecture]
Which of the following best describes the reason PQC preparation is important?

A. To protect data against decryption due to increases in computational resource availability
B. To have larger key lengths available through key stretching

C. To improve encryption performance and speed using lightweight cryptography
D. To leverage asymmetric encryption for large amounts of data

Answer: A

Explanation:

Post-Quantum Cryptography (PQC) preparation is critical to protect data against future quantum computing attacks that could break current cryptographic algorithms (e.g., RSA, ECC). According to the CompTIA SecurityX CAS-005 study guide (Domain 3: Cybersecurity Technology, 3.3), quantum computers with sufficient computational power could perform calculations (e.g., Shor's algorithm) to decrypt data protected by traditional algorithms. PQC focuses on developing algorithms resistant to such increases in computational resources, ensuring long-term data security.
Option B:Key stretching is a technique to strengthen passwords, not related to PQC.
Option C:PQC algorithms often have higher computational costs, not improved performance.
Option D:Asymmetric encryption is not ideal for large data sets, and PQC is not specifically about this use case.
Option A:This accurately describes PQC's purpose to safeguard data against quantum-driven decryption.
Reference:
CompTIA SecurityX CAS-005 Official Study Guide, Domain 3: Cybersecurity Technology, Section 3.3: "Prepare for post-quantum cryptography challenges."
CAS-005 Exam Objectives, 3.3: "Evaluate the need for PQC in response to quantum computing advancements."

Question: 194

[Security Architecture]
A security team determines that the most significant risks within the pipeline are:

- Unauthorized code changes
- The current inability to perform independent verification of software modules Which of the following best addresses these concerns?

A. Code signing
B. Digital signatures
C. Non-repudiation
D. Lightweight cryptography

Answer: A

Explanation:

Unauthorized code changesand lack ofindependent verificationare directly mitigated bycode signing, which ensures that code is from a trusted source and has not been altered.
While digital signatures are part of code signing, the broader practice of code signing encompasses signature management, version integrity, and trusted sources.
Lightweight cryptography is irrelevant in this context; it's more about efficiency in constrained devices.
Non-repudiation is a benefit of digital signatures but doesn't directly solve the verification/integrity concerns alone.
FromCAS-005 Guide, Domain 4: Security Architecture, Tools, and Technologies:

"Code signing ensures that the code has not been tampered with and originates from a trusted developer."
Reference:CAS-005 Official Study Guide, Chapter 10: Secure Development Operations, pg. 201–204

Question: 195

[Security Architecture]
A pharmaceutical lab hired a consultant to identify potential risks associated with Building 2, a new facility that is under construction. The consultant received the IT project plan, which includes the following VLAN design:

Name	VLAN	Subnet	Function	Regulated network?
Building 1 servers	111	10.1.11.0/25	Servers	No
Building 1 users	100	10.1.0.0/23	User Wi-Fi and LAN	No
Building 1 HVAC	105	10.1.5.0/27	HVAC controls	No
Building 1 lab	170	10.1.70.0/24	Lab	Yes
Building 1 QC	180	10.1.80.0/24	Lab	Yes
Building 2 servers	211	10.2.11.0/25	Servers	No
Building 2 users	200	10.2.0.0/22	Users and lab	Yes
Building 2 HVAC	215	10.2.15.0/27	HVAC controls	No

Which of the following TTPs should the consultant recommend be addressed first?

A. Zone traversal
B. Unauthorized execution
C. Privilege escalation
D. Lateral movement

Answer: A

Explanation:

Theregulated lab environment (Yes)shares the same VLAN (10.2.0.0/22) withusers, creatingzone traversalrisk from unregulated zones to sensitive datanetworks.
This allows pivoting and lateral movement from non-regulated user devices into regulated lab environments — a classiczone boundary violation.
Zone traversal should be mitigated with segmentation and firewall enforcement.
FromCAS-005, Domain 2: Risk Management and Mitigation Strategies:
"Zone traversal occurs when segmentation boundaries are misconfigured or merged, leading to regulatory and risk compliance failures."

Reference:CAS-005 Study Guide, Chapter 8: Network Segmentation and Zoning, pg. 152–154

Question: 196

[Security Architecture]
An organization plans to deploy new software. The project manager compiles a list of roles that will be involved in different phases of the deployment life cycle. Which of the following should the project manager use to track these roles?

A. CMDB
B. Recall tree
C. ITIL
D. RACI matrix

Answer: D

Explanation:

RACI matrix(Responsible, Accountable, Consulted, Informed) is used for role mapping across the project lifecycle.
CMDB is a configuration inventory; ITIL is a framework. Recall trees are for disaster recovery/business continuity.
FromCAS-005, Domain 1: Security Governance and Compliance:
"The RACI matrix is essential in role assignment and accountability for software development and operational processes."
Reference:CAS-005 Official Guide, Chapter 3: Governance Frameworks, pg. 78–79

Question: 197

[Security Architecture]
A security engineer is reviewing the following vulnerability scan report:

Hostname	IP address	Description	Public facing	CVSS 3.0 score
web.example.com	192.168.7.1	Apache HTTP Server < 2.4	No	9.7
comptia-rhelOI	152.368.131	CpenSSH < 9.0/9.6p1	Yes	9.2
comptia-rhel02	192.163.7.2	Google Chrome Update < 10.0.131	No	3.5
webl.example.com	152.36 8.132	SSL/TLS 1.0 Weak Protocols Support	Yes	3.5

Which of the following should the engineer prioritize for remediation?

A. Apache HTTP Server

B. OpenSSH
C. Google Chrome
D. Migration to TLS 1.3

Answer: B

Explanation:

OpenSSH vulnerabilityispublic facingand has acritical CVSS of 9.2.
Exploitable SSH services can lead to direct server compromise.
Although Apache has a higher score, it's internal.
FromCAS-005, Domain 3: Vulnerability Management:
"Prioritize external vulnerabilities with high CVSS and exposed attack surfaces."
Reference:CAS-005 Guide, Chapter 7: Vulnerability Prioritization, pg. 140–143

Question: 198

[Security Architecture]
A malware researcher has discovered a credential stealer is looking at a specific memory register to harvest passwords that will be used later for lateral movement in corporate networks. The malware is using TCP 4444 to communicate with other workstations. The lateral movement would be best mitigated by:

A. Configuring the CPU's NX bit
B. Enabling a host firewall
C. Enabling an edge firewall
D. Enforcing all systems to use UEFI
E. Enabling ASLR on the Active Directory server

Answer: B

Explanation:

The malware uses TCP 4444 to move laterally between systems. A host-based firewall can block unauthorized communication ports (like TCP 4444) on each workstation, preventing malware from establishing connections and spreading. Configuring the CPU's NX bit and enabling ASLR primarily help in mitigating memory-based exploits, not in stopping lateral movement. Enabling UEFI ensures boot integrity but does not mitigate active lateral communication. An edge firewall would protect the network perimeter, not internal workstation-to-workstation communication.
Reference:CompTIA SecurityX CAS-005, Domain 2.0: Implement host-based security solutions, including host-based firewalls to mitigate threats.

Question: 199

[Governance, Risk, and Compliance (GRC)]
Company A acquired Company B. During an audit, a security engineer found Company B's environment was inadequately patched. In response, Company A placed a firewall between the two environments until Company B's infrastructure could be integrated into Company A's security program. Which of the following risk-handling

techniques was used?

A. Accept

B. Avoid

C. Transfer

D. Mitigate

Answer: D

Explanation:

Risk mitigation involves taking actions to reduce either the likelihood or impact of a threat. By implementing a firewall between the two environments, Company A is minimizing the risk of threats from Company B impacting its own systems. Accepting the risk would involve taking no action, avoiding it would mean terminating activities with Company B, and transferring would involve outsourcing the risk, none of which occurred here.

Reference:CompTIA SecurityX CAS-005, Domain 1.0: Apply appropriate risk response techniques to identified risks.

Question: 200

[Security Architecture]

An organization recently implemented a purchasing freeze that has impacted endpoint life-cycle management efforts. Which of the following should a security manager do to reduce risk without replacing the endpoints?

A. Remove unneeded services

B. Deploy EDR

C. Dispose of end-of-support devices

D. Reimage the system

Answer: A

Explanation:

Removing unnecessary services from existing endpoints reduces the attack surface by minimizing the number of potential vulnerabilities attackers could exploit. This is a cost-effective method to harden devices without requiring new purchases, aligning perfectly with a purchasing freeze. Deploying new EDR solutions or disposing of devices would likely conflict with the resource freeze, and reimaging systems does not address minimizing services proactively.

Reference:CompTIA SecurityX CAS-005, Domain 3.0: Implement endpoint security controls and hardening techniques.

Question: 201

[Emerging Technologies and Threats]

A local government that is investigating a data exfiltration claim was asked to review the fingerprint of the malicious user's actions. An investigator took a forensic image of the VM and downloaded the

image to a secured USB drive to share with the government. Which of the following should be taken into consideration during the process of releasing the drive to the government?

A. Encryption in transit
B. Legal issues
C. Chain of custody
D. Order of volatility
E. Key exchange

Answer: C

Explanation:

Chain of custody ensures that evidence is protected, documented, and accounted for from the moment it is collected until it is presented in court or a legal proceeding. Properly maintaining chain of custody is critical to proving that the evidence has not been tampered with. Although encryption protects data during transit, and legal issues are important, without a documented chain of custody, the integrity of the evidence itself could be challenged and invalidated.

Reference:CompTIA SecurityX CAS-005, Domain 2.0: Apply forensic procedures for collecting, securing, and documenting evidence to maintain chain of custody.

Question: 202

[Emerging Technologies and Threats]

While investigating a security event an analyst finds evidence that a user opened an email attachment from an unknown source. Shortly after the user opened the attachment, a group of servers experienced a large amount of network and resource activity. Upon investigating the servers, the analyst discovers the servers were encrypted by ransomware that is demanding payment within 48 hours or all data will be destroyed. The company has no response plans for ransomware. Which of the following is the next step the analyst should take after reporting the incident to the management team?

A. Pay the ransom within 48 hours
B. Isolate the servers to prevent the spread
C. Notify law enforcement
D. Request that the affected servers be restored immediately

Answer: B

Explanation:

The immediate action after discovering ransomware is toisolate the affected serversto prevent further spread of the malware to other systems in the network. Paying the ransom is not recommended as it does not guarantee data recovery and encourages criminal behavior. Notifying law enforcement is necessary, but containment must happen first to limit damage. Requesting server

restoration should only occur after containment and a thorough investigation to ensure no remnants of ransomware remain.

Reference:CompTIA SecurityX CAS-005, Domain 2.0: Execute incident response procedures to contain and mitigate incidents.

Question: 203

[Security Architecture]

The device event logs sourced from MDM software are as follows:

Device | Date/Time | Location | Event | Description

ANDROID_102 | 01JAN21 0255 | 38.9072N, 77.0369W | PUSH | APPLICATION 1220 INSTALL QUEUED

ANDROID_102 | 01JAN21 0301 | 38.9072N, 77.0369W | INVENTORY | APPLICATION 1220 ADDED

ANDROID_1022 | 01JAN21 0701 |39.0067N, 77.4291W | CHECK-IN | NORMAL

ANDROID_1022 | 01JAN21 0701 |25.2854N, 51.5310E | CHECK-IN | NORMAL

ANDROID_1022 | 01JAN21 0900 |39.0067N, 77.4291W | CHECK-IN | NORMAL

ANDROID_1022 | 01JAN21 1030 |39.0067N, 77.4291W | STATUS | LOCAL STORAGE REPORTING 85% FULL

Which of the following security concerns and response actions would best address the risks posed by the device in the logs?

A. Malicious installation of an application; change the MDM configuration to remove application ID 1220
B. Resource leak; recover the device for analysis and clean up the local storage
C. Impossible travel; disable the device's account and access while investigating
D. Falsified status reporting; remotely wipe the device

Answer: C

Explanation:

The logs show the device checking in from two distant locations (USA and Qatar) at nearly the same time, which indicatesimpossible travel— a strong indicator that either the device has been cloned, compromised, or credentials stolen. The best immediate action is todisable the device's account and accessto prevent potential misuse while an investigation is conducted. Malicious application installation or resource issues are possible but secondary concerns here compared to account compromise.

Reference:CompTIA SecurityX CAS-005, Domain 2.0: Detect and analyze anomalous behavior in mobility solutions and respond appropriately.

Question: 204

[Security Engineering and Cryptography]

Which of the following best describes a common use case for homomorphic encryption?

A. Processing data on a server after decrypting in order to prevent unauthorized access in transit
B. Maintaining the confidentiality of data both at rest and in transit to and from a CSP for processing
C. Transmitting confidential data to a CSP for processing on a large number of resources without revealing information
D. Storing proprietary data across multiple nodes in a private cloud to prevent access by unauthenticated users

Answer: C

Explanation:

Homomorphic encryptionallows computations to be performed directly on encrypted data without decrypting it first. This technology is particularly useful for securely transmitting confidential data to a cloud service provider (CSP) and allowing the CSP to process the data without having any visibility into its content. This maintains data confidentiality even during processing. It is not about securing data at rest and in transit or simply storing data across nodes.

Reference:CompTIA SecurityX CAS-005, Domain 3.0: Implement secure protocols and encryption technologies including homomorphic encryption for cloud and external processing.

Question: 205

[Emerging Technologies and Threats]

A security architect is investigating instances of employees who had their phones stolen in public places through seemingly targeted attacks. Devices are able to access company resources such as email and internal documentation, some of which can persist in application storage. Which of the following would best protect the company from information exposure? (Select two).

A. Implement a remote wipe procedure if the phone does not check in for a period of time
B. Enforce biometric access control with configured timeouts
C. Set up geofencing for corporate applications where the phone must be near an office
D. Use application control to restrict the applications that can be installed
E. Leverage an MDM solution to prevent the side loading of mobile applications
F. Enable device certificates that will be used for access to company resources

Answer: A,B

Explanation:

To protect company information on stolen mobile devices, implementingremote wipe proceduresensures data can be erased if a device is suspected lost or stolen.Biometric access controlwith enforced timeouts further secures the device, requiring biometric authentication periodically, thus limiting unauthorized access even if the device is stolen. Geofencing and certificates provide additional security layers but are less immediate protections against information exposure after theft. Application control and side-loading prevention are important for malware threats but less so for stolen device scenarios.

Reference:CompTIA SecurityX CAS-005, Domain 3.0: Apply mobile device security strategies including remote wipe, biometrics, and device access controls.

Question: 206

[Security Architecture]

A company undergoing digital transformation is reviewing the resiliency of a CSP and is concerned about meeting SLA requirements in the event of a CSP incident. Which of the following would be best to proceed with the transformation?

A. An on-premises solution as a backup
B. A load balancer with a round-robin configuration
C. A multicloud provider solution
D. An active-active solution within the same tenant

Answer: C

Explanation:

Multicloud provider solutionsinvolve using services from more than one cloud provider to ensure resiliency and redundancy. In the event of a failure or SLA breach by one CSP, another provider can maintain service continuity. An on-premises backup could help, but does not address CSP-specific SLA concerns directly. Round-robin load balancing and active-active within the same tenant still depend on a single provider, thus posing risks if the CSP fails. Reference:CompTIA SecurityX CAS-005, Domain 4.0: Implement redundancy and fault-tolerant strategies, including multicloud deployment for service resiliency.

Question: 207

[Emerging Technologies and Threats]

A security engineer wants to propose an MDM solution to mitigate certain risks. The MDM solution should meet the following requirements:

- Mobile devices should be disabled if they leave the trusted zone.
- If the mobile device is lost, data is not accessible.

Which of the following options should the security engineer enable on the MDM solution? (Select two).

A. Geofencing
B. Patch management
C. Containerization
D. Full disk encryption
E. Allow/blocklist
F. Geotagging

Answer: A,D

Explanation:

Geofencingallows the device to be restricted based on its physical location — disabling or locking devices when they move outside of trusted zones.Full disk encryptionensures that if a device is lost, the data remains inaccessible to unauthorized users. Containerization protects specific apps or data, but does not disable the entire device. Patch management, allow/blocklists, and geotagging serve other important functions but are not directly linked to the requirements in this scenario. Reference:CompTIA SecurityX CAS-005, Domain 3.0: Implement mobile device security, including encryption and location-based access controls like geofencing.

Question: 208

[Security Architecture]
Which of the following security risks should be considered as an organization reduces cost and increases availability of services by adopting serverless computing?

A. Level of control and influence governments have over cloud service providers
B. Type of virtualization or emulation technology used in the provisioning of services
C. Vertical scalability of the infrastructure underpinning the serverless offerings
D. Use of third-party monitoring of service provisioning and configurations

Answer: A

Explanation:

In serverless computing, organizations rely heavily on CSPs to manage the infrastructure, runtime, and scaling. A key risk is thelevel of control and influence governments have over CSPs, potentially affecting availability, access, or confidentiality of hosted services due to legal orders or government actions. Concerns about virtualization technologies, scalability, or third-party monitoring are valid but less critical compared to the overarching legal and control risks tied to CSP reliance.

Reference:CompTIA SecurityX CAS-005, Domain 4.0: Understand the legal and regulatory impacts and risks of adopting third-party serverless solutions.

Question: 209

[Security Architecture]
An attacker infiltrated the code base of a hardware manufacturer and inserted malware before the code was compiled. The malicious code is now running at the hardware level across a number of industries and sectors. Which of the following categories best describes this type of vendor risk?

A. SDLC attack
B. Side-load attack
C. Remote code signing
D. Supply chain attack

Answer: D

Explanation:

This scenario clearly describes asupply chain attack, where the compromise occurs at the vendor or manufacturing stage before the product reaches the customer. The attack impacts many downstream organizations and sectors. SDLC attacks are focused on software development life cycles, side-loading involves unauthorized app installations, and remote code signing focuses on authenticating remote software, none of which fully encapsulate the situation described.

Reference:CompTIA SecurityX CAS-005, Domain 2.0: Assess vendor risks, including supply chain compromises and mitigation strategies.

Question: 210

[Security Architecture]
An enterprise is deploying APIs that utilize a private key and a public key to ensure the connection string is protected. To connect to the API, customers must use the private key. Which of the following would best secure the REST API connection to the database while preventing the use of a hard-coded string in the request string?

A. Implement a VPN for all APIs
B. Sign the key with DSA
C. Deploy MFA for the service accounts
D. Utilize HMAC for the keys

Answer: D

Explanation:

HMAC (Hash-based Message Authentication Code)ensures the integrity and authentication of API requests without exposing static or hard-coded private keys. It uses a secret key and a hash function, preventing replay attacks and tampering. VPNs secure the transport layer, MFA protects user accounts (not API-to-database communications), and DSA is a signature algorithm but does not address hard-coding risk directly.

Reference:CompTIA SecurityX CAS-005, Domain 3.0: Implement secure API practices including the use of HMAC for key protection.

Question: 211

[Governance, Risk, and Compliance (GRC)]
A recent security audit identified multiple endpoints have the following vulnerabilities:

- Various unsecured open ports
- Active accounts for terminated personnel
- Endpoint protection software with legacy versions
- Overly permissive access rules

Which of the following would best mitigate these risks? (Select three).

A. Local drive encryption
B. Secure boot
C. Address space layout randomization
D. Unneeded services disabled
E. Patching
F. Logging
G. Removal of unused accounts
H. Enabling BIOS password

Answer: D,E,G

Explanation:

Disabling unneeded servicesreduces the attack surface by closing open ports.Patchingensures that endpoint protection software and operating systems are up-to-date, reducing vulnerability exposure.Removing unused accountseliminates access paths for malicious users exploiting dormant accounts. Secure boot, BIOS passwords, and drive encryption are important, but they address different layers of security than the vulnerabilities listed.

Reference:CompTIA SecurityX CAS-005, Domain 2.0: Apply system hardening techniques to endpoint security issues.

Question: 212

[Security Architecture]

After a vendor identified a recent vulnerability, a severity score was assigned to the vulnerability. A notification was also publicly distributed. Which of the following would most likely include information regarding the vulnerability and the recommended remediation steps?

A. CVE
B. CVSS
C. CCE
D. CPE

Answer: A

Explanation:

CVE (Common Vulnerabilities and Exposures)provides unique identifiers for publicly known cybersecurity vulnerabilities and exposures. Each CVE entry includes a description and, often, remediation information. CVSS refers to scoring severity, CCE focuses on configuration issues, and
CPE deals with naming standardized platforms and systems.

Reference:CompTIA SecurityX CAS-005, Domain 2.0: Utilize publicly available vulnerability sources like CVE for risk mitigation.

Question: 213

[Security Operations]

A security analyst notices a number of SIEM events that show the following activity:

10/30/2020 - 8:01 UTC - 192.168.1.1 - sc stop HinDctend
10/30/2020 - 8:05 UTC - 192.168.1.2 - c:\program files\games\comptidcasp.exe
10/30/2020 - 8:07 UTC - 192.168.1.1 - c:\windows\system32\cmd.exe /c powershell
10/30/2020 - 8:07 UTC - 192.168.1.1 - powershell —> 40.90.23.154:443

Which of the following response actions should the analyst take first?

A. Disable powershell.exe on all Microsoft Windows endpoints
B. Restart Microsoft Windows Defender
C. Configure the forward proxy to block 40.90.23.154
D. Disable local administrator privileges on the endpoints

Answer: C

Explanation:

The first immediate action in an active incident iscontainment.Blocking the IP address (40.90.23.154)at the network edge prevents further communication with the malicious external server. Disabling PowerShell or removing local admin privileges are valid hardening steps, but containment by network control is the highest priority during an active compromise to stop data exfiltration or further command and control activity.

Reference:CompTIA SecurityX CAS-005, Domain 2.0: Apply incident response techniques focusing on immediate containment actions.

Question: 214

[Security Engineering and Cryptography]

A social media company wants to change encryption ciphers after identifying weaknesses in the implementation of the existing ciphers. The company needs the new ciphers to meet the following requirements:

- Utilize less RAM than competing ciphers.
- Be more CPU-efficient than previous ciphers.
- Require customers to use TLS 1.3 while broadcasting video or audio.

Which of the following is the best choice for the social media company?

A. IDEA-CBC
B. AES-GCM
C. ChaCha20-Poly1305
D. Camellia-CBC

Answer: C

Explanation:

ChaCha20-Poly1305is a cipher suite specifically designed for efficiency on systems with limited hardware resources. It offers high security with lower memory and CPU consumption compared to AES on certain platforms, especially mobile devices. TLS 1.3 supports ChaCha20-Poly1305 natively. CBC (Cipher Block Chaining) modes like IDEA-CBC and Camellia-CBC are less efficient and not recommended under TLS 1.3, and AES-GCM, while secure, can be less efficient than ChaCha20 on devices without AES hardware acceleration.

Reference:CompTIA SecurityX CAS-005, Domain 3.0: Implement secure protocols including TLS 1.3 and lightweight cipher selections for performance efficiency.

Question: 215

[Security Architecture]

A Chief Information Security Officer (CISO) is concerned that a company's current data disposal procedures could result in data remanence. The company uses only SSDs. Which of the following would be the most secure way to dispose of the SSDs given the CISO's concern?

A. Degaussing
B. Overwriting
C. Shredding
D. Formatting
E. Incinerating

Answer: E

Explanation:

For SSDs,incinerationis considered the most secure method of physical destruction, ensuring no data remanence. SSDs store data differently compared to traditional spinning disks, making degaussing ineffective. Overwriting and formatting may not reliably erase all storage cells due to wear-leveling technologies. Shredding may work if the granularity is extremely fine, but incineration guarantees complete destruction beyond recovery.

Reference:CompTIA SecurityX CAS-005, Domain 2.0: Apply secure media sanitization methods appropriate for device types such as SSDs.

Question: 216

[Security Architecture]

A healthcare system recently suffered from a ransomware incident. As a result, the board of directors decided to hire a security consultant to improve existing network security. The security consultant found that the healthcare network was completely flat, had no privileged access limits, and had open RDP access to servers with personal health information. As the consultant builds the remediation plan, which of the following solutions would best solve these challenges? (Select three).

A. SD-WAN
B. PAM
C. Remote access VPN
D. MFA
E. Network segmentation
F. BGP
G. NAC

Answer: B,D,E

Explanation:

Privileged Access Management (PAM)restricts elevated permissions, reducing the risk of widespread ransomware attacks.Multi-Factor Authentication (MFA)protects against credential theft and ensures that even if passwords are compromised, accounts are not easily accessible.Network segmentationbreaks the flat network into secure zones, limiting lateral movement by attackers. SD- WAN and BGP relate to network routing and efficiency, not security architecture specifically. Remote access VPN secures external access but does not solve internal flat network issues. Network Access Control (NAC) is helpful but secondary compared to PAM, MFA, and segmentation in this context.
Reference:CompTIA SecurityX CAS-005, Domain 2.0: Implement identity and access controls, network segmentation, and authentication hardening to mitigate internal threats.

Question: 217

An organization recently implemented a policy that requires all passwords to be rotated every 90 days. An administrator observes a large volume of failed sign-on logs from multiple servers that are often accessed by users. The administrator determines users are disconnecting from the RDP session but not logging off. Which of the following should the administrator do to prevent account lockouts?

A. Increase the account lockout threshold.
B. Enforce password complexity.
C. Automate logout of inactive sessions.
D. Extend the allowed session length.

Answer: C

Explanation:

When users disconnect from Remote Desktop Protocol (RDP) sessions without properly logging off, their sessions remain active on the server. If their passwords are changed due to the 90-day rotation policy, these lingering sessions may attempt to reauthenticate using outdated credentials, leading to multiple failed login attempts and potential account lockouts.
Automating the logout of inactive sessions ensures that disconnected or idle sessions are terminated after a specified period, preventing stale sessions from causing authentication issues. This approach aligns with best practices for session management and helps maintain security compliance.
Reference: CompTIA SecurityX CAS-005 Exam Objectives, Domain 3.1: "Given a scenario, troubleshoot common issues with identity and access management (IAM) components in an enterprise environment."

Question: 218

A security engineer wants to improve the security of an application as part of the development pipeline. The engineer reviews the following component of an internally developed web application that allows employees to manipulate documents from a number of internal servers: response = requests.get(url)
Users can specify the document to be parsed by passing the document URL to the application as a parameter.

Which of the following is the best solution?

A. Indexing
B. Output encoding
C. Code scanner
D. Penetration testing

Answer: C

Explanation:

The application allows users to input URLs, which the application then fetches using requests.get(url). This functionality can be exploited if not properly validated, leading to potential security vulnerabilities such as Server-Side Request Forgery (SSRF).
Implementing a code scanner as part of the development pipeline can help identify insecure coding practices, such as unsanitized user inputs and improper handling of external requests. Code scanners analyze the source code for known vulnerabilities and coding errors, enabling developers to remediate issues before deployment.
Reference: CompTIA SecurityX CAS-005 Exam Objectives, Domain 2.2: "Given a scenario, implement security in the early stages of the systems life cycle and throughout subsequent stages."

Question: 219

A security engineer discovers that some legacy systems are still in use or were not properly decommissioned. After further investigation, the engineer identifies that an unknown and potentially malicious server is also sending emails on behalf of the company. The security engineer extracts the following data for review:

Server IP	DNS	Status	Auth. pass rate
200.100.50.25	marketing.company .com	Authorized	97%
200.50.25.10	29mail.mycrosoft.nifo	Unauthorized	0%
210.20.20.5	mail.soode.com	Authorized	100%

Which of the following actions should the security engineer take next? (Select two).

A. Rotate the DKIM selector to use another key.
B. Change the DMARC policy to reject and remove references to the server.
C. Remove the unnecessary servers from the SPF record.
D. Change the SPF record to enforce the hard fail parameter.
E. Update the MX record to contain only the primary email server.
F. Change the DMARC policy to none and monitor email flow to establish a new baseline.

Answer: C, D

Explanation:

The presence of an unauthorized server (29mail.mycrosoft.info) sending emails on behalf of the company indicates a potential spoofing or phishing attempt. To mitigate this:

Remove the unnecessary servers from the SPF record (Option C): The Sender Policy Framework (SPF) specifies which mail servers are authorized to send emails on behalf of a domain. Removing unauthorized or unnecessary servers from the SPF record helps prevent spoofed emails from passing SPF checks.
Change the SPF record to enforce the hard fail parameter (Option D): Setting the SPF policy to a hard fail (-all) ensures that emails from unauthorized servers are rejected, enhancing email security.
Implementing these changes strengthens the domain's email authentication mechanisms, reducing the risk of successful phishing or spoofing attacks.
Reference: CompTIA SecurityX CAS-005 Exam Objectives, Domain 3.2: "Given a scenario, analyze requirements to enhance the security of endpoints and servers."

Question: 220

Which of the following tests explains why AI output could be inaccurate?

A. Model poisoning
B. Social engineering
C. Output handling
D. Prompt injections

Answer: A

Explanation:
Comprehensive and Detailed

Model poisoning occurs when an attacker manipulates the training data or the training process of an AI model so that its predictions are deliberately inaccurate or biased. In the SecurityX CAS-005 objectives, this is part of understanding emerging technology threats, specifically AI/ML vulnerabilities. This differs from:
Social engineering, which manipulates humans rather than AI models.
Output handling, which deals with how outputs are processed but doesn't cause inaccuracy at the model level.
Prompt injections, which manipulate the model at query time, not during training.
Because model poisoning directly corrupts the AI model itself, it is the clearest reason AI outputs could be inaccurate.

Question: 221

A software vendor provides routine functionality and security updates to its global customer base. The vendor would like to ensure distributed updates are authorized, originate from only the company, and have not been modified by others. Which of the following solutions best supports these objectives?

A. Envelope encryption
B. File integrity monitoring
C. Application control
D. Code signing

Answer: D

Explanation:

Comprehensive and Detailed

Code signing uses cryptographic digital signatures to prove that software or updates come from a trusted source and have not been altered. In the SecurityX CAS-005 objectives, this is covered under security engineering and cryptographic assurance mechanisms.

Envelope encryption protects confidentiality but does not authenticate the source.

File integrity monitoring detects file changes but does not confirm the origin of the update.

Application control manages which software can run but does not ensure authenticity of distributed files.

Only code signing meets all three objectives: verifying the source, ensuring authorization, and proving integrity.

Question: 222

During DAST scanning, applications are consistently reporting code defects in open-source libraries that were used to build web applications. Most of the code defects are from using libraries with known vulnerabilities. The code defects are causing product deployment delays. Which of the following is the best way to uncover these issues earlier in the life cycle?

A. Directing application logs to the SIEM for continuous monitoring
B. Modifying the WAF policies to block against known vulnerabilities
C. Completing an IAST scan against the web application
D. Using a software dependency management solution

Answer: D

Explanation:

Comprehensive and Detailed

SecurityX CAS-005 exam content emphasizes integrating security into the SDLC and using automated tools to identify vulnerabilities early.

Software dependency management solutions track and analyze libraries and components for known vulnerabilities before deployment, using vulnerability databases such as NVD or OSS Index.

IAST scanning still requires the application to be running and may detect issues later.

WAF policies help block attacks in production but do not prevent vulnerable code from being deployed.

SIEM monitoring is reactive and identifies issues after they occur.

By detecting vulnerable dependencies early, software dependency management solutions prevent late-stage deployment delays and reduce security risk.

Question: 223

A security analyst is reviewing the following code in the public repository for potential risk concerns: typescript

CopyEdit

include bouncycastle-1.4.jar;

include jquery-2.0.2.jar;

public static void main() {...}

public static void territory() { ... }

public static void state() { ... }

public static String code = "init";

public static String access_token = "spat-hfeiw-sogur-werdb-werib";

Which of the following should the security analyst recommend first to remediate the vulnerability?

A. Developing role-based security awareness training
B. Revoking the secret used in the solution
C. Purging code from public view
D. Scanning the application with SAST

Answer: B

Explanation:
Comprehensive and Detailed
The code snippet exposes a hardcoded access token in a public repository. According to SecurityX CAS-005 secure coding best practices, the immediate action must be to revoke the exposed secret to prevent unauthorized access.
Removing the code from public view without revoking the token leaves the secret still usable by any attacker who has already seen or copied it.
SAST scanning would detect the issue but not mitigate it immediately.
Security awareness training is a long-term prevention measure but does not fix the immediate exposure.
Revoking the secret first stops ongoing exploitation, after which the code can be removed, and preventative measures can be implemented.

Question: 224

A global organization is reviewing potential vendors to outsource a critical payroll function. Each vendor's plan includes using local resources in multiple regions to ensure compliance with all regulations. The organization's Chief Information Security Officer is conducting a risk assessment on the potential outsourcing vendors' subprocessors. Which of the following best explains the need for this risk assessment?

A. Risk mitigations must be more comprehensive than the existing payroll provider.
B. Due care must be exercised during all procurement activities.
C. The responsibility of protecting PII remains with the organization.
D. Specific regulatory requirements must be met in each jurisdiction.

Answer: C

Explanation:
Comprehensive and Detailed
Per SecurityX CAS-005 GRC principles, outsourcing a function does not transfer accountability for protecting personally identifiable information (PII). While subprocessors handle data, the originating organization remains responsible under most data protection laws and frameworks (e.g., GDPR, CCPA).
Due care in procurement (option B) is important, but it is a supporting concept, not the primary driver in this context.
Jurisdictional compliance (option D) is a requirement, but the underlying reason for risk assessment is that accountability for PII protection remains with the organization.

Question: 225

A systems administrator needs to identify new attacks that could be carried out against the environment. The administrator plans to proactively seek out and observe new attacks. Which of the following is the best way to

accomplish this goal?

A. Configuring an IPS
B. Implementing sandboxing
C. Scanning for IoCs
D. Deploying a honeypot

Answer: D

Explanation:
Comprehensive and Detailed
According to SecurityX CAS-005 threat intelligence and testing objectives, a honeypot is a decoy system designed to lure attackers, allowing security teams to observe new tactics, techniques, and procedures (TTPs) in a controlled environment.
An IPS is designed to block known attacks but not discover new ones.
Sandboxing is useful for analyzing suspicious files or malware samples but not for attracting live, unknown attack attempts.
Scanning for IoCs detects known compromise indicators, not new, emerging attacks.
A honeypot directly supports proactive attack discovery and analysis.

Question: 226

A network security architect for an organization with a highly remote workforce implements an always-on VPN to meet business requirements. Which of the following best explains why the architect is using this approach?

A. To facilitate device authentication using on-premises directory services
B. To allow access to directly connected print and scan resources
C. To enable usability of locally attached removable storage
D. To authorize updates to change the PIN on a smart card

Answer: A

Explanation:
Comprehensive and Detailed
Always-on VPN ensures that devices connect automatically to the corporate network whenever they are online, allowing seamless access to internal resources and enabling authentication against onpremises directory services (such as Active Directory). This supports centralized identity management, GPO enforcement, and compliance requirements.
Options B, C, and D involve local or peripheral resources, which are unaffected by VPN state.

Question: 227

A user tried to access a web page at http://10.1.1.1. Previously the web page did not require authentication, and now the browser is prompting for credentials. Which of the following actions would best prevent the issue from reoccurring and reduce the likelihood of credential exposure?

A. Implementing 802.1x EAP-TTLS on access points to reduce the risk of evil twins
B. Transitioning internal services to use DNS security
C. Modifying web server configuration and utilizing X509 certificates for authentication
D. Installing new rules for the IDS to detect impersonation attacks

Answer: C

Explanation:
Comprehensive and Detailed
Using X.509 certificates for authentication with HTTPS encrypts credentials in transit and provides server identity verification. In SecurityX CAS-005 objectives, securing internal web services with TLS and mutual authentication is a primary method to reduce credential interception or reuse.
802.1 X EAP-TTLS is for network access control, not web authentication.
DNS security (DNSSEC) ensures DNS integrity, not web session encryption.
IDS rules help detect, but not prevent, credential exposure.

Question: 228

A large organization deployed a generative AI platform for its global user population to use. Based on feedback received during beta testing, engineers have identified issues with user interface latency and page-loading performance for international users. The infrastructure is currently maintained within two separate data centers, which are connected using high-availability networking and load balancers. Which of the following is the best way to address the performance issues?

A. Configuring the application to use a CDN
B. Implementing RASP to enable large language models queuing
C. Remote journaling within a third data center
D. Traffic shaping through the use of a SASE

Answer: A

Explanation:
Comprehensive and Detailed
A Content Delivery Network (CDN) caches and distributes static and dynamic web content across multiple geographically distributed edge servers, reducing latency for global users. This directly addresses page-loading delays caused by distance from the primary data centers.
RASP is for runtime application security, not latency.
Remote journaling is for data replication, not performance optimization.
SASE can improve security and WAN routing, but a CDN is purpose-built for content delivery performance.

Question: 229

A systems administrator is working with clients to verify email-based services are performing properly. The administrator wants to have the email server digitally sign outbound emails using the organization's private key. Which of the following should the systems administrator configure?

A. SPF
B. DKIM

C. DMARC

D. TLS

Answer: B

Explanation:

Comprehensive and Detailed

DomainKeys Identified Mail (DKIM) digitally signs outbound messages with the organization's private key, enabling recipients to verify integrity and authenticity using the corresponding public key in DNS.

SPF validates sending server IPs, not message integrity.

DMARC builds policy enforcement on top of SPF and DKIM results.

TLS secures the transport channel, not the message content itself.

Question: 230

An administrator brings the company's fleet of mobile devices into its PKI in order to align device WLAN NAC configurations with existing workstations and laptops. Thousands of devices need to be reconfigured in a cost-effective, time-efficient, and secure manner. Which of the following actions best achieve this goal? (Select two)

A. Using the existing MDM solution to integrate with directory services for authentication and enrollment

B. Deploying netAuth extended key usage certificate templates

C. Deploying serverAuth extended key usage certificate templates

D. Deploying clientAuth extended key usage certificate templates

E. Configuring SCEP on the CA with an OTP for bulk device enrollment

F. Submitting a CSR to the CA to obtain a single certificate that can be used across all devices

Answer: A, E

Explanation:

Comprehensive and Detailed

For bulk PKI enrollment:

MDM integration with directory services streamlines certificate request and deployment per device, leveraging existing authentication methods.

Simple Certificate Enrollment Protocol (SCEP) with one-time passwords allows automated, secure, large-scale certificate issuance without manual CSR handling.

clientAuth templates are used for device authentication, but selecting it alone is insufficient without automated enrollment mechanisms.

A single certificate for all devices violates PKI security principles and compromises individual device accountability.

Question: 231

An organization recently acquired another company that is running a different EDR solution. A SOC analyst wants to automate the isolation of endpoints that are found to be compromised. Which of the following workflows best mitigates the risk of false positives and reduces the spread of malicious code?

A. Using a SOAR solution to look up entities via a TIP platform and isolate endpoints via APIs
B. Setting a policy on each EDR management console to isolate all endpoints that trigger any alerts
C. Reviewing all alerts manually in the various portals and taking action to isolate them
D. Automating the suppression of all alerts that are not critical and sending an email asking SOC analysts to review these alerts

Answer: A

Explanation:
Comprehensive and Detailed
SecurityX CAS-005 emphasizes automation with validation in security operations. Security Orchestration, Automation, and Response (SOAR) platforms can integrate with Threat Intelligence Platforms (TIPs) to verify threat indicators before triggering automated endpoint isolation through EDR APIs. This approach reduces the spread of malware while minimizing the chance of isolating clean systems due to false positives.
Isolating endpoints on any alert (B) is high-risk and can disrupt business operations.
Manual review (C) is too slow for fast-moving threats.
Suppressing alerts (D) risks missing critical events entirely.

Question: 232

After an organization met with its ISAC, the organization decided to test the resiliency of its security controls against a small number of advanced threat actors. Which of the following will enable the security administrator to accomplish this task?

A. Adversary emulation
B. Reliability factors
C. Deployment of a honeypot
D. Internal reconnaissance

Answer: A

Explanation:
Comprehensive and Detailed
Adversary emulation simulates specific advanced persistent threat (APT) behaviors and techniques to test an organization's security posture. In SecurityX CAS-005, this is part of red-teaming and purpleteaming strategies for realistic resilience testing.
Reliability factors (B) relate to operational uptime, not threat simulation.
Honeypots (C) attract attackers but do not directly emulate specific adversaries.
Internal reconnaissance (D) is one phase of an attack simulation, not the full emulation of advanced threat actors.

Question: 233

An organization decides to move to a distributed workforce model. Several legacy systems exist on premises and cannot be migrated because of existing compliance requirements. However, all new systems are required to be cloud-based. Which of the following would best ensure network access security?

A. Utilizing a VPN for all users who require legacy system access
B. Shifting all legacy systems to the existing public cloud infrastructure

C. Configuring an SDN to block malicious traffic to on-premises networks

D. Deploying microsegmentation with a firewall acting as the core router

Answer: A

Explanation:

Comprehensive and Detailed

For a distributed workforce needing access to compliance-bound on-premises systems, VPN access ensures encrypted, authenticated connectivity while limiting exposure. SecurityX CAS-005 emphasizes using VPNs for secure remote access when direct migration to cloud is not possible.

Moving legacy systems to cloud (B) violates the compliance constraints.

SDN security controls (C) are beneficial but do not inherently provide secure remote connectivity. Microsegmentation (D) is useful for internal lateral movement control but does not solve remote access needs.

Question: 234

An analyst wants to conduct a risk assessment on a new application that is being deployed. Given the following information:

- Total budget allocation for the new application is unavailable.
- Recovery time objectives have not been set.
- Downtime loss calculations cannot be provided.

Which of the following statements describes the reason a qualitative assessment is the best option?

A. The analyst has previous work experience in application development.

B. Sufficient metrics are not available to conduct other risk assessment types.

C. An organizational risk register tracks all risks and mitigations across business units.

D. The organization wants to find the monetary value of any outages.

Answer: B

Explanation:

Comprehensive and Detailed

Qualitative risk assessment is used when quantitative data (monetary loss, exact downtime cost, RTO) is unavailable or unreliable. The SecurityX CAS-005 GRC objectives note that qualitative methods rely on expert judgment, likelihood scales, and impact ratings rather than financial calculations. In this case, insufficient metrics rule out quantitative analysis.

Option A (work experience) is irrelevant to the choice of assessment type.

Option C (risk register) supports tracking, not selecting the assessment method.

Option D describes a quantitative goal, which is not possible with the given lack of metrics.

Question: 235

A company migrated a critical workload from its data center to the cloud. The workload uses a very large data set that requires computational-intensive data processing. The business unit that uses the workload is projecting the following growth pattern:

- Storage requirements will double every six months.

- Computational requirements will fluctuate throughout the year.
- Average computational requirements will double every year.

Which of the following should the company do to address the business unit's requirements?

A. Deploy a cloud-based CDN for storage and a load balancer for compute.
B. Combine compute and storage in vertically autoscaling mode.
C. Implement a load balancer for computing and storage resources.
D. Plan for a horizontally scaling computing and storage infrastructure.

Answer: D

Explanation:

Comprehensive and Detailed

SecurityX CAS-005 cloud architecture guidance emphasizes horizontal scaling for workloads that need to handle both predictable and fluctuating growth over time. Horizontal scaling allows the infrastructure to add nodes for both compute and storage dynamically, providing elasticity to meet fluctuating computational demands while accommodating exponential storage growth.

Vertical scaling (B) has hardware limits and is not as flexible for large, sustained growth.

CDN (A) is optimized for content distribution, not intensive compute workloads.

Load balancing (C) distributes workloads but does not address scaling for data growth.

Question: 236

A subcontractor develops safety critical avionics software for a major aircraft manufacturer. After an incident, a third-party investigator recommends the company begin to employ formal methods in the development life cycle. Which of the following findings from the investigation most directly supports the investigator's recommendation?

A. The system's bill of materials failed to include commercial and open-source libraries.
B. The company lacks dynamic and Interactive application security testing standards.
C. The codebase lacks traceability to functional and non-functional requirements.
D. The implemented software inefficiently manages compute and memory resources.

Answer: C

Explanation:

Comprehensive and Detailed

Formal methods in software engineering use mathematically based specifications to ensure system correctness, safety, and compliance with requirements. SecurityX CAS-005 stresses the importance of traceability between code and both functional and non-functional requirements for high-assurance systems like avionics. A lack of traceability means it is impossible to verify that the implementation meets all required safety and performance standards—exactly what formal methods address.

Question: 237

A company designs policies and procedures for hardening containers deployed in the production environment. However, a security assessment reveals that deployed containers are not complying with the security baseline. Which of the following solutions best addresses this issue throughout early life-cycle stages?

A. Installing endpoint agents on each container and setting them to report when configurations drift from the baseline

B. Finding hardened container images and enforcing them as the baseline for new deployments

C. Creating a pipeline to check the containers through security gates and validating the baseline controls before the final deployment

D. Running security assessments regularly and checking for the security baseline on containers already in production

Answer: C

Explanation:

Comprehensive and Detailed

SecurityX CAS-005 secure DevOps guidance recommends integrating security controls into the CI/CD pipeline. By validating container security baselines at security gates before deployment, noncompliant builds are stopped early, ensuring consistency across environments.

Option B is useful but does not ensure compliance if changes are made after image creation.

Option A detects drift but only after deployment.

Option D is reactive and does not prevent insecure deployments.

Question: 238

To prevent data breaches, security leaders at a company decide to expand user education to:

- Create a healthy security culture.
- Comply with regulatory requirements.
- Improve incident reporting.

Which of the following would best meet their objective?

A. Performing a DoS attack

B. Scheduling regular penetration tests

C. Simulating a phishing campaign

D. Deploying fake ransomware

Answer: C

Explanation:

Comprehensive and Detailed

Phishing simulations are a proven method for reinforcing security awareness, meeting compliance training requirements, and improving user incident reporting. In CAS-005, social engineering testing is a recommended component of organizational security culture programs.

DoS attacks (A) and penetration tests (B) assess technical security, not user awareness.

Fake ransomware (D) can cause unnecessary alarm and operational disruption.

Question: 239

A company implemented a NIDS and a NIPS on the most critical environments. Since this implementation, the company has been experiencing network connectivity issues. Which of the following should the security architect recommend for a new NIDS/NIPS implementation?

A. Implementing the NIDS with a port mirror in the core switch and the NIPS in the main firewall

B. Implementing the NIDS and the NIPS together with the main firewall

C. Implementing a NIDS without a NIPS to increase the detection capability

D. Implementing the NIDS in the bastion host and the NIPS in the branch network router

Answer: A

Explanation:

Comprehensive and Detailed

Best practice in CAS-005 network security design is to deploy:

NIDS passively via a port mirror (SPAN port) to avoid introducing latency or failure points.

NIPS inline in a strategic point, such as integrated with the main firewall, to actively block threats.

This combination provides both visibility and active protection without overloading network paths.

Question: 240

An organization recently migrated data to a new file management system. The architect decides to use a discretionary authorization model on the new system. Which of the following best explains the architect's choice?

A. The responsibility of migrating data to the new file management system was outsourced to the vendor providing the platform.

B. The permissions were not able to be migrated to the new system, and several stakeholders were made responsible for granting appropriate access.

C. The legacy file management system did not support modern authentication techniques despite the business requirements.

D. The data custodians were selected by business stakeholders to ensure backups of the file management system are maintained off site.

Answer: B

Explanation:

Comprehensive and Detailed

In a Discretionary Access Control (DAC) model, the data owner or an assigned stakeholder has the authority to determine who can access resources. SecurityX CAS-005 IAM objectives describe DAC as user- or owner-controlled, where permissions can be granted or revoked at the owner's discretion. In this scenario, because permissions from the legacy system could not be migrated, multiple stakeholders were made responsible for assigning and managing access—matching the DAC model's characteristics.

Option A relates to outsourcing, which does not define an access control model.

Option C is about authentication limitations, unrelated to the choice of DAC.

Option D describes backup responsibilities, which are operational tasks, not access control.

Question: 241

During a recent audit, a company's systems were assessed- Given the following information:

Department	System	Status	Notes
Accounting	TaxReporting	OK	
Human resources	HRIS	OK	
Manufacturing	Productioncontrol	WARNING	EOL software detected

Support	ServiceDesk	WARNING	Patches available

Which of the following is the best way to reduce the attack surface?

A. Deploying an EDR solution to all impacted machines in manufacturing
B. Segmenting the manufacturing network with a firewall and placing the rules in monitor mode
C. Setting up an IDS inline to monitor and detect any threats to the software
D. Implementing an application-aware firewall and writing strict rules for the application access

Answer: D

Explanation:

SecurityX CAS-005 network architecture objectives emphasize limiting exposure of vulnerable systems by using application-aware firewalls with strict rule sets.
This approach directly reduces the attack surface by allowing only approved application traffic to and from the vulnerable systems, mitigating risk until systems are patched or replaced.
EDR (A) enhances detection but doesn't inherently reduce the exposed services.
Network segmentation in monitor mode (B) doesn't block threats.
IDS (C) detects activity but does not block it.

Question: 242

A building camera is remotely accessed and disabled from the remote console application during off- hours. A security analyst reviews the following logs:

```
11 Dec 16:03:43 192.168.2.45 access granted to admin from 192.168.2.5 443 GET /camexas/loading_dock.htm 200
Mozilla/5.0 (Windows NT 5.1) Gecko
11 Dec 16:33:43 192.168.2.45 access granted to admin from 192.168,2,5 443 GET /cameras/loading_dock.htm 200
Mozilla/S.0(Windows NT 5.1) Gecko
11 Dec 22:30:23 192.168.2.45 access granted to admin from 104.18.16.29 80 GET /cameras/loading_dock.htm 200
Mozilla/5.0 (Xll.Linux x86_64) Applewebkit
11 Dec 23:00:23 192.168.2.45 logoff admin from 104.18.16.29 80 GET /cameras/loadir.g_dock.htm 200 Hozilla/5.0 (Xll.Linux
x86_64) Applewebkit
11  Dec 23:05:43 192.168.2.45 access granted to admin from 104.18.16.29 80 GET /cameras/loading_dock.htm 200
Mozilla/5.0 (Xll.Linux x86 64) Applewebkit
11 Dec 23:35:43 192.168.2.45 logoff admin from 104.18.16.29 80 GET /cameras/loading_dock.htm 200 Mozilla/5.0 (Xll.Linux
x86_64) Applewebkit
12  Dec 00:30:53 192.168.2.45 access granted to admin from 104.18.16.29 80 GET /cameras/loading_dock.htm 200
Mozilla/5.0 (Xll.Linux x86_64) Applewebkit
```

A security architect is onboarding a new EDR agent on servers that traditionally do not have internet access. In order for the agent to receive updates and report back to the management console, some changes must be made. Which of the following should the architect do to best accomplish this requirement? (Select two).

A. Create a firewall rule to only allow traffic from the subnet to the internet via a proxy.
B. Configure a proxy policy that blocks all traffic on port 443.
C. Configure a proxy policy that allows only fully qualified domain names needed to communicate to a portal.
D. Create a firewall rule to only allow traffic from the subnet to the internet via port 443.
E. Create a firewall rule to only allow traffic from the subnet to the internet to fully qualified names that are not identified as malicious by the firewall vendor.
F. Configure a proxy policy that blocks only lists of known-bad, fully qualified domain names.

Answer: A, C

Explanation:

SecurityX CAS-005 endpoint security and network control objectives emphasize least privilege network access. Creating a firewall rule to allow outbound traffic only via a proxy (A) ensures centralized inspection and control. Configuring the proxy to allow only the required FQDNs for EDR management communication (C) limits exposure to necessary destinations.

Options D and E allow broader access than necessary, and B would block required communications entirely. F relies on blocklists instead of allowlists, which is less secure for high-assurance environments.

Question: 243

A company experienced a data breach, resulting in the disclosure of extremely sensitive data regarding a merger. As a regulated entity, the company must comply with reporting and disclosure requirements. The company is concerned about its public image and shareholder values. Which of the following best supports the organization in addressing its concerns?

A. Data subject access request
B. Business impact analysis
C. Supply chain management program
D. Crisis management plan

Answer: D

Explanation:

A crisis management plan defines coordinated communication and response strategies for high- profile incidents that may harm an organization's public reputation and shareholder confidence. CAS- 005 GRC content includes crisis communication planning for regulatory compliance and public relations in the wake of breaches.

A Data Subject Access Request (A) addresses individual data rights, not overall crisis handling. Business Impact Analysis (B) helps assess potential operational and financial impacts but does not manage public perception during an incident.

Supply chain management (C) is preventative for vendor risks, not responsive to current crises.

Question: 244

A web application server that provides services to hybrid modern and legacy financial applications recently underwent a scheduled upgrade to update common libraries, including OpenSSL. Multiple users are now reporting failed connection attempts to the server. The technician performing initial triage identified the following:

- Client applications more than five years old appear to be the most affected.
- Web server logs show initial connection attempts by affected hosts.
- For the failed connections, logs indicate "cipher unavailable."

Which of the following is most likely to safely remediate this situation?

A. The server needs to be configured for backward compatibility to SSL 3.0 applications.
B. The client applications need to be modified to support AES in Galois/Counter Mode or equivalent.

C. The client TLS configuration must be set to enforce electronic codebook modes of operation.

D. The server-side digital signature algorithm needs to be modified to support elliptic curve cryptography.

Answer: B

Explanation:

The "cipher unavailable" message indicates that the client and server could not agree on a common cipher suite. After the OpenSSL update, the server likely dropped support for older, insecure ciphers (such as RC4 or 3DES) that legacy clients still use. The safest remediation is to update or configure the client applications to support modern, secure ciphers such as AES in Galois/Counter Mode (AES- GCM) or an equivalent strong cipher suite that is supported by the updated OpenSSL server.

Option A (SSL 3.0) is unsafe because SSL 3.0 is deprecated and vulnerable to multiple attacks (e.g., POODLE).

Option C (ECB mode) is insecure due to pattern leakage and should never be enforced.

Option D (ECC signatures) relates to key exchange and signatures, not to the "cipher unavailable" issue directly.

This approach aligns with SecurityX CAS-005 cryptographic interoperability guidance—modernize clients rather than reintroduce insecure protocols.

Question: 245

A security analyst is reviewing a SIEM and generates the following report:

Log source	Destination IP	Source IP	Hostname	Event ID	Action	Time
DEV001	192.168.1.2	192.168.2.2	VM001	9928	Deny connection	4:55:28
DEV001	192.168.3.2	192.168.2.2	VM001	1912	IPS Alert	7:21:41
DEV001	10.1.1.1,192.168.2.2,VM001,1822 Malware detection,8:11:12					
DEV001	10.1.1.1	192.168.2.2	VM001	9927	Allow connection	8:15:32

Later, the incident response team notices an attack was executed on the VM001 host. Which of the following should the security analyst do to enhance the alerting process on the SIEM platform?

A. Include the EDR solution on the SIEM as a new log source.
B. Perform a log correlation on the SIEM solution.
C. Improve parsing of data on the SIEM.
D. Create a new rule set to detect malware.

Answer: B

Explanation:

The SIEM already contains multiple events that, if correlated, would have indicated an active attack sequence on VM001—such as denied connections, IPS alerts, malware detection, and then an allowed connection. CAS-005 Security Operations objectives emphasize log correlation as a way to enhance detection by linking related events across different time stamps and data sources into a single, higher-confidence alert.

Option A (adding EDR logs) could add visibility but does not address the need to connect existing events for earlier detection.

Option C (improving parsing) ensures readability but does not create actionable alerts.

Option D (creating a new malware detection rule) is redundant since malware detection already appeared in logs; the issue was the lack of correlation to act on it in time.

By correlating IDS, IPS, firewall, and malware detection logs, the SIEM can raise a higher-priority alert before the attack is completed.

Question: 246

* www.int.comptia.org
- webserver01.int.comptia.org
- 10.5.100.10

An administrator needs to craft a single certificate-signing request for a web-server certificate. The server should be able to use the following identities to mutually authenticate other resources over TLS:

- wwwJnt.comptia.org
- webserver01.int.comptia.org
- 10.5.100.10

Which of the following certificate fields must be set properly to support this objective?

A. Subject alternative name
B. Organizational unit
C. Extended key usage
D. Certificate extension

Answer: A

Explanation:

The Subject Alternative Name (SAN) field in an X.509 certificate specifies additional hostnames, FQDNs, or IP addresses that the certificate will secure. To allow mutual TLS authentication for multiple hostnames and an IP address, these identities must be included in the SAN field. Organizational Unit (B) is an informational attribute, not related to TLS authentication. Extended Key Usage (C) defines purpose (e.g., serverAuth, clientAuth) but not hostnames. “Certificate extension” (D) is a generic term; SAN is the specific required extension.

Question: 247

An organization purchased a new manufacturing facility and the security administrator needs to:

- Implement security monitoring.
- Protect any non-traditional device(s)/network(s).
- Ensure no downtime for critical systems.

Which of the following strategies best meets these requirements?

A. Configuring honeypots in the internal network to capture malicious activity
B. Analyzing system behavior and responding to any increase in activity
C. Applying updates and patches soon after they have been released
D. Observing the environment and proactively addressing any malicious activity

Answer: D

Explanation:

Comprehensive and Detailed

For operational technology (OT) and non-traditional devices, downtime must be avoided. CAS-005 recommends passive monitoring and proactive response for environments where active scanning or changes could disrupt operations. Observing the environment continuously and acting on malicious indicators allows security without interrupting critical manufacturing processes.

Honeypots (A) are good for research but don't provide full facility monitoring.

Behavioral analysis (B) is reactive without proactive measures.

Patching (C) is important but could cause downtime and may be limited in OT environments.

Question: 248

Due to an infrastructure optimization plan, a company has moved from a unified architecture to a federated architecture divided by region. Long-term employees now have a better experience, but

new employees are experiencing major performance issues when traveling between regions. The company is reviewing the following information:

Date and time	Region	Employee	System	Status
1/25/2024 8:00 a.m.	Americas	1	Building	Access granted
1/25/2024 8:05 a.m.	Americas	1	EMP1.LT	Log-in success
1/25/2024 4:55 p.m.	Americas	1	EMP1-LT	Log-out success
1/26/2024 9:00 a.m.	Europe	1	Building	Access granted
1/26/2024 9:15 a.m.	Europe	1	EMP1-LT	Log-in success
1/26/2024 4:55 p.m.	Europe	1	EMP1-LT	Log-out success

Date and time	Region	Employee	System	Status
1/25/2024 8:00 a.m.	Americas	2	Building	Access granted
1/25/2024 8:05 a.m.	Americas	2	EMP1-LT	Log-in success
1/25/2024 4:55 p.m.	Americas	2	EMP1-LT	Log-out success
1/26/2024 9:00 a.m.	Europe	2	Building	Access denied
1/26/2024 9:01 a.m.	Europe	2	Building	Access denied
1/26/2024 9:02 a.m.	Europe	2	Building	Access denied

Which of the following is the most effective action to remediate the issue?

A. Creating a new user entry in the affected region for the affected employee
B. Synchronizing all regions* user identities and ensuring ongoing synchronization
C. Restarting European region physical access control systems
D. Resyncing single sign-on application with connected security appliances

Answer: B

Explanation:

In a federated environment divided by region, if user identities are not synchronized across regions, authentication may be slow or fail when employees travel. CAS-005 IAM guidance states that identity synchronization ensures user attributes and credentials are consistently available in all regions, reducing latency and login issues.

Option A creates separate identities, which breaks single identity management. Option C is unrelated to the

login performance issue. Option D may resolve SSO appliance sync but not cross-region identity data availability.

Question: 249

After a cybersecurity incident, a security analyst was able to collect a binary that the attacker used on the compromised server. Then the analyst ran the following command:

root$kali> strings binary.exe sdfa....as.d.as .. .s. ..2.3.3.1. .5. .6.6 >@34. .....4..... 133 ..... http://192.168.1.2/?=cmd.exe whoami.... ..... ipconfig....5.6.2...g..q23..45.56>56. ..22312.... evil.info ..... 2185ks99//283jf//// ..... c:\\windows\\system32\\temps.xml 1.2..34 ...e.gt.gv . 5.65. publicWtemps .bin

auy66
Microsoft Windows Win32

Which of the following options describes what the analyst is trying to do?

A. To reconstruct the timeline of commands executed by the binary
B. To extract loCs from the binary used on the attack
C. To replicate the attack in a secure environment

Answer: B

Explanation:

The strings utility extracts human-readable text from binary files. Security analysts use it to identify Indicators of Compromise (IoCs) such as URLs, IP addresses, filenames, and commands embedded in the malware.
Option A (reconstructing timeline) would require event logs or forensic timeline tools.
Option C (replicating the attack) involves execution in a sandbox, not static string extraction.

Question: 250

4d 5a 90 00 03 00 00 00 04 00 00 00 ff ff 00 00 b8 00 00 00 00 00 00 00 40 00 00 00 00 00 00 00 00 00

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 80 00 00 00 0e 1f ba 0e 00 b4 09 cd 21 b8 01 4c cd 21 54 68 69 73 20 70 72 6f 67 72 61 6d
20 63 61 6e 6e 6f 74 20 62 65 20 72 75 6e 20 69 6e 20 44 4f 53 20
6d 6f 64 65 2e 0d 0d 0a 24 00 00 00 00 00 00 00
50 45 00 00 4c 01 03 00 34 6d be 66 00 00 00 00 00 00 00 00 e0 00 0f 03 0b 01 05 00 00 70 00 00 00
10 00 00 00 d0 00 00 70 4c 01 00 00 e0 00 00 00 50 01 00 00 00 40 00
00 10 00 00 00 02 00 00 04 00 00 00 00 00 00 00 04 00 00 00 00 00 00 00 00 60 01 00 00 02 00 00 00
00 00 00 00 03 00 00 00 00 10 00 00 10 00 00 00 00 10 00 00 10 00 00
00 00 00 00 10 00 00 00 00 00 00 00 00 00 00 00

Attempts to run the code in a sandbox produce no results. Which of the following should the malware analyst do next to further analyze the malware and discover useful IoCs?

A. Convert the hex-encoded sample to binary and attempt to decompile it.
B. Run the encoded sample through an online vulnerability tool and check for any matches.
C. Pad the beginning and end of the sample with binary executables and attempt to execute it.
D. Use a disassembler on the unencoded snippet to convert from binary to ASCII text.

Answer:A

Explanation:

The provided hex sequence begins with "4d 5a," which corresponds to the ASCII characters "MZ," indicating the presence of a DOS MZ executable file header. This suggests that the sample is a Windows executable file. To analyze this malware effectively, the analyst should convert the hexencoded data back into its binary form to reconstruct the executable file. Once converted, the analyst can use decompilation tools to translate the binary code into a higher-level programming language, facilitating a deeper understanding of the malware's functionality and the extraction of Indicators of Compromise (IoCs).

Other options, such as running the sample through an online vulnerability tool (Option B) or padding it with executables (Option C), are less effective without first converting the hex data back to its original binary form. Using a disassembler on the unencoded snippet (Option D) would not be feasible until the hex data is properly reconstructed into its executable binary format.

Reference:CompTIA SecurityX CAS-005 Official Study Guide, Chapter 5: "Malware Analysis," Section 5.3: "Static and Dynamic Analysis Techniques."