

Exam Questions SSCP

System Security Certified Practitioner (SSCP)

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NEW QUESTION 1

- (Topic 1)

The Terminal Access Controller Access Control System (TACACS) employs which of the following?

- A. a user ID and static password for network access
- B. a user ID and dynamic password for network access
- C. a user ID and symmetric password for network access
- D. a user ID and asymmetric password for network access

Answer: A

Explanation:

For networked applications, the Terminal Access Controller Access Control System (TACACS) employs a user ID and a static password for network access.
Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 44.

NEW QUESTION 2

- (Topic 1)

Which of the following pairings uses technology to enforce access control policies?

- A. Preventive/Administrative
- B. Preventive/Technical
- C. Preventive/Physical
- D. Detective/Administrative

Answer: B

Explanation:

The preventive/technical pairing uses technology to enforce access control policies.

TECHNICAL CONTROLS

Technical security involves the use of safeguards incorporated in computer hardware, operations or applications software, communications hardware and software, and related devices. Technical controls are sometimes referred to as logical controls.

Preventive Technical Controls

Preventive technical controls are used to prevent unauthorized personnel or programs from gaining remote access to computing resources. Examples of these controls include:

Access control software. Antivirus software. Library control systems. Passwords.

Smart cards. Encryption.

Dial-up access control and callback systems.

Preventive Physical Controls

Preventive physical controls are employed to prevent unauthorized personnel from entering computing facilities (i.e., locations housing computing resources, supporting utilities, computer hard copy, and input data media) and to help protect against natural disasters. Examples of these controls include:

Backup files and documentation. Fences.

Security guards. Badge systems. Double door systems. Locks and keys. Backup power.

Biometric access controls. Site selection.

Fire extinguishers.

Preventive Administrative Controls

Preventive administrative controls are personnel-oriented techniques for controlling people's behavior to ensure the confidentiality, integrity, and availability of computing data and programs. Examples of preventive administrative controls include:

Security awareness and technical training. Separation of duties.

Procedures for recruiting and terminating employees. Security policies and procedures.

Supervision.

Disaster recovery, contingency, and emergency plans. User registration for computer access.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 34.

NEW QUESTION 3

- (Topic 1)

Which access control model achieves data integrity through well-formed transactions and separation of duties?

- A. Clark-Wilson model
- B. Biba model
- C. Non-interference model
- D. Sutherland model

Answer: A

Explanation:

The Clark-Wilson model differs from other models that are subject- and object- oriented by introducing a third access element programs resulting in what is called an access triple, which prevents unauthorized users from modifying data or programs. The Biba model uses objects and subjects and addresses integrity based on a hierarchical

lattice of integrity levels. The non-interference model is related to the information flow model with restrictions on the information flow. The Sutherland model approaches integrity by focusing on the problem of inference.

Source: ANDRESS, Mandy, Exam Cram CISSP, Coriolis, 2001, Chapter 2: Access Control Systems and Methodology (page 12).

And: KRAUSE, Micki & TIPTON, Harold F., Handbook of Information Security Management, CRC Press, 1997, Domain 1: Access Control.

NEW QUESTION 4

- (Topic 1)

Smart cards are an example of which type of control?

- A. Detective control
- B. Administrative control
- C. Technical control
- D. Physical control

Answer: C

Explanation:

Logical or technical controls involve the restriction of access to systems and the protection of information. Smart cards and encryption are examples of these types of control.

Controls are put into place to reduce the risk an organization faces, and they come in three main flavors: administrative, technical, and physical. Administrative controls are commonly referred to as “soft controls” because they are more management-oriented. Examples of administrative controls are security documentation, risk management, personnel security, and training. Technical controls (also called logical controls) are software or hardware components, as in firewalls, IDS, encryption, identification and authentication mechanisms. And physical controls are items put into place to protect facility, personnel, and resources. Examples of physical controls are security guards, locks, fencing, and lighting.

Many types of technical controls enable a user to access a system and the resources within that system. A technical control may be a username and password combination, a Kerberos implementation, biometrics, public key infrastructure (PKI), RADIUS, TACACS +, or authentication using a smart card through a reader connected to a system. These technologies verify the user is who he says he is by using different types of authentication methods. Once a user is properly authenticated, he can be authorized and allowed access to network resources.

Reference(s) used for this question:

Harris, Shon (2012-10-25). CISSP All-in-One Exam Guide, 6th Edition (p. 245). McGraw- Hill. Kindle Edition.

and

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 2: Access control systems (page 32).

NEW QUESTION 5

- (Topic 1)

Physical security is accomplished through proper facility construction, fire and water protection, anti-theft mechanisms, intrusion detection systems, and security procedures that are adhered to and enforced. Which of the following is not a component that achieves this type of security?

- A. Administrative control mechanisms
- B. Integrity control mechanisms
- C. Technical control mechanisms
- D. Physical control mechanisms

Answer: B

Explanation:

Integrity Controls Mechanisms are not part of physical security. All of the other detractors were correct this one was the wrong one that does not belong to Physical Security. Below you have more details extracted from the SearchSecurity web site: Information security depends on the security and management of the physical space in which computer systems operate. Domain 9 of the CISSP exam's Common Body of Knowledge addresses the challenges of securing the physical space, its systems and the people who work within it by use of administrative, technical and physical controls. The following QUESTION NO: s are covered:

Facilities management: The administrative processes that govern the maintenance and protection of the physical operations space, from site selection through emergency response.

Risks, issues and protection strategies: Risk identification and the selection of security protection components.

Perimeter security: Typical physical protection controls.

Facilities management

Facilities management is a complex component of corporate security that ranges from the planning of a secure physical site to the management of the physical information system environment. Facilities management responsibilities include site selection and physical security planning (i.e. facility construction, design and layout, fire and water damage protection, antitheft mechanisms, intrusion detection and security procedures.) Protections must extend to both people and assets. The necessary level of protection depends on the value of the assets and data. CISSP® candidates must learn the concept of critical-path analysis as a means of determining a component's business function criticality relative to the cost of operation and replacement. Furthermore, students need to gain an understanding of the optimal location and physical attributes of a secure facility. Among the QUESTION NO: s covered in this domain are site inspection, location, accessibility and obscurity, considering the area crime rate, and the likelihood of natural hazards such as floods or earthquakes.

This domain also covers the quality of construction material, such as its protective qualities and load capabilities, as well as how to lay out the structure to minimize risk of forcible entry and accidental damage. Regulatory compliance is also touched on, as is preferred proximity to civil protection services, such as fire and police stations. Attention is given to computer and equipment rooms, including their location, configuration (entrance/egress requirements) and their proximity to wiring distribution centers at the site.

Physical risks, issues and protection strategies

An overview of physical security risks includes risk of theft, service interruption, physical damage, compromised system integrity and unauthorized disclosure of information. Interruptions to business can manifest due to loss of power, services, telecommunications connectivity and water supply. These can also seriously compromise electronic security monitoring alarm/response devices. Backup options are also covered in this domain, as is a strategy for quantifying the risk exposure by simple formula.

Investment in preventive security can be costly. Appropriate redundancy of people skills, systems and infrastructure must be based on the criticality of the data and assets to be preserved. Therefore a strategy is presented that helps determine the selection of cost appropriate controls. Among the QUESTION NO: s covered in this domain are regulatory and legal requirements, common standard security protections such as locks and fences, and the importance of establishing service level agreements for maintenance and disaster support. Rounding out the optimization approach are simple calculations for determining mean time between failure and mean time to repair (used to estimate average equipment life expectancy) — essential for estimating the cost/benefit of purchasing and maintaining redundant equipment.

As the lifeblood of computer systems, special attention is placed on adequacy, quality and protection of power supplies. CISSP candidates need to understand power supply concepts and terminology, including those for quality (i.e. transient noise vs. clean power); types of interference (EMI and RFI); and types of interruptions such as power excess by spikes and surges, power loss by fault or blackout, and power degradation from sags and brownouts. A simple formula is presented for determining the total cost per hour for backup power. Proving power reliability through testing is recommended and the advantages of three power protection approaches are discussed (standby UPS, power line conditioners and backup sources) including minimum requirements for primary and alternate power provided.

Environmental controls are explored in this domain, including the value of positive pressure water drains and climate monitoring devices used to control temperature, humidity and reduce static electricity. Optimal temperatures and humidity settings are provided.

Recommendations include strict procedures during emergencies, preventing typical risks (such as blocked fans), and the use of antistatic armbands and hygrometers. Positive pressurization for proper ventilation and monitoring for air born contaminants is stressed.

The pros and cons of several detection response systems are deeply explored in this domain. The concept of combustion, the classes of fire and fire extinguisher

ratings are detailed. Mechanisms behind smoke-activated, heat-activated and flame-activated devices and Automatic Dial-up alarms are covered, along with their advantages, costs and shortcomings. Types of fire sources are distinguished and the effectiveness of fire suppression methods for each is included. For instance, Halon and its approved replacements are covered, as are the advantages and the inherent risks to equipment of the use of water sprinklers.

Administrative controls

The physical security domain also deals with administrative controls applied to physical sites and assets. The need for skilled personnel, knowledge sharing between them, separation of duties, and appropriate oversight in the care and maintenance of equipment and environments is stressed. A list of management duties including hiring checks, employee maintenance activities and recommended termination procedures is offered. Emergency measures include accountability for evacuation and system shutdown procedures, integration with disaster and business continuity plans, assuring documented procedures are easily available during different types of emergencies, the scheduling of periodic equipment testing, administrative reviews of documentation, procedures and recovery plans, responsibilities delegation, and personnel training and drills.

Perimeter security

Domain nine also covers the devices and techniques used to control access to a space. These include access control devices, surveillance monitoring, intrusion detection and corrective actions. Specifications are provided for optimal external boundary protection, including fence heights and placement, and lighting placement and types. Selection of door types and lock characteristics are covered. Surveillance methods and intrusion-detection methods are explained, including the use of video monitoring, guards, dogs, proximity detection systems, photoelectric/photometric systems, wave pattern devices, passive infrared systems, and sound and motion detectors, and current flow sensitivity devices that specifically address computer theft. Room lock types — both preset and cipher locks (and their variations) -- device locks, such as portable laptop locks, lockable server bays, switch control locks and slot locks, port controls, peripheral switch controls and cable trap locks are also covered. Personal access control methods used to identify authorized users for site entry are covered at length, noting social engineering risks such as piggybacking. Wireless proximity devices, both user access and system sensing readers are covered (i.e. transponder based, passive devices and field powered devices) in this domain.

Now that you've been introduced to the key concepts of Domain 9, watch the Domain 9, Physical Security video

Return to the CISSP Essentials Security School main page

See all SearchSecurity.com's resources on CISSP certification training Source: HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw-Hill/Osborne, 2001, Page 280.

NEW QUESTION 6

- (Topic 1)

A potential problem related to the physical installation of the Iris Scanner in regards to the usage of the iris pattern within a biometric system is:

- A. concern that the laser beam may cause eye damage
- B. the iris pattern changes as a person grows older.
- C. there is a relatively high rate of false accepts.
- D. the optical unit must be positioned so that the sun does not shine into the aperture.

Answer: D

Explanation:

Because the optical unit utilizes a camera and infrared light to create the images, sun light can impact the aperture so it must not be positioned in direct light of any type. Because the subject does not need to have direct contact with the optical reader, direct light can impact the reader.

An Iris recognition is a form of biometrics that is based on the uniqueness of a subject's iris. A camera like device records the patterns of the iris creating what is known as Iriscode.

It is the unique patterns of the iris that allow it to be one of the most accurate forms of biometric identification of an individual. Unlike other types of biometrics, the iris rarely changes over time. Fingerprints can change over time due to scaring and manual labor, voice patterns can change due to a variety of causes, hand geometry can also change as well. But barring surgery or an accident it is not usual for an iris to change. The subject has a high-resolution image taken of their iris and this is then converted to Iriscode. The current standard for the Iriscode was developed by John Daugman. When the subject attempts to be authenticated an infrared light is used to capture the iris image and this image is then compared to the Iriscode. If there is a match the subject's identity is confirmed. The subject does not need to have direct contact with the optical reader so it is a less invasive means of authentication then retinal scanning would be.

Reference(s) used for this question: AIO, 3rd edition, Access Control, p 134. AIO, 4th edition, Access Control, p 182.

Wikipedia - http://en.wikipedia.org/wiki/Iris_recognition The following answers are incorrect:

concern that the laser beam may cause eye damage. The optical readers do not use laser so, concern that the laser beam may cause eye damage is not an issue. the iris pattern changes as a person grows older. The question asked about the physical installation of the scanner, so this was not the best answer. If the question would have been about long term problems then it could have been the best choice. Recent research has shown that Irises actually do change over time:

<http://www.nature.com/news/ageing-eyes-hinder-biometric-scans-1.10722>

there is a relatively high rate of false accepts. Since the advent of the Iriscode there is a very low rate of false accepts, in fact the algorithm used has never had a false match. This all depends on the quality of the equipment used but because of the uniqueness of the iris even when comparing identical twins, iris patterns are unique.

NEW QUESTION 7

- (Topic 1)

Which of following is not a service provided by AAA servers (Radius, TACACS and DIAMETER)?

- A. Authentication
- B. Administration
- C. Accounting
- D. Authorization

Answer: B

Explanation:

Radius, TACACS and DIAMETER are classified as authentication, authorization, and accounting (AAA) servers.

Source: TIPTON, Harold F. & KRAUSE, MICKI, Information Security Management Handbook, 4th Edition, Volume 2, 2001, CRC Press, NY, Page 33.

also see:

The term "AAA" is often used, describing cornerstone concepts [of the AIC triad] Authentication, Authorization, and Accountability. Left out of the AAA acronym is Identification which is required before the three "A's" can follow. Identity is a claim, Authentication proves an identity, Authorization describes the action you can perform on a system once you have been identified and authenticated, and accountability holds users accountable for their actions.

Reference: CISSP Study Guide, Conrad Misenar, Feldman p. 10-11, (c) 2010 Elsevier.

NEW QUESTION 8

- (Topic 1)

Which of the following is implemented through scripts or smart agents that replays the users multiple log-ins against authentication servers to verify a user's

identity which permit access to system services?

- A. Single Sign-On
- B. Dynamic Sign-On
- C. Smart cards
- D. Kerberos

Answer: A

Explanation:

SSO can be implemented by using scripts that replay the users multiple log- ins against authentication servers to verify a user's identity and to permit access to system services.

Single Sign on was the best answer in this case because it would include Kerberos. When you have two good answers within the 4 choices presented you must select the

BEST one. The high level choice is always the best. When one choice would include the other one that would be the best as well.

Reference(s) used for this question:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 40.

NEW QUESTION 9

- (Topic 1)

Crime Prevention Through Environmental Design (CPTED) is a discipline that:

- A. Outlines how the proper design of a physical environment can reduce crime by directly affecting human behavior.
- B. Outlines how the proper design of the logical environment can reduce crime by directly affecting human behavior.
- C. Outlines how the proper design of the detective control environment can reduce crime by directly affecting human behavior.
- D. Outlines how the proper design of the administrative control environment can reduce crime by directly affecting human behavior.

Answer: A

Explanation:

Crime Prevention Through Environmental Design (CPTED) is a discipline that outlines how the proper design of a physical environment can reduce crime by directly affecting human behavior. It provides guidance about lost and crime prevention through proper facility construction and environmental components and procedures.

CPTED concepts were developed in the 1960s. They have been expanded upon and have matured as our environments and crime types have evolved. CPTED has been used not just to develop corporate physical security programs, but also for large-scale activities such as development of neighborhoods, towns, and cities. It addresses landscaping, entrances, facility and neighborhood layouts, lighting, road placement, and traffic circulation patterns. It looks at microenvironments, such as offices and rest-rooms, and macroenvironments, like campuses and cities.

Reference(s) used for this question:

Harris, Shon (2012-10-18). CISSP All-in-One Exam Guide, 6th Edition (p. 435). McGraw- Hill. Kindle Edition.

and

CPTED Guide Book

NEW QUESTION 10

- (Topic 1)

What refers to legitimate users accessing networked services that would normally be restricted to them?

- A. Spoofing
- B. Piggybacking
- C. Eavesdropping
- D. Logon abuse

Answer: D

Explanation:

Unauthorized access of restricted network services by the circumvention of security access controls is known as logon abuse. This type of abuse refers to users who may be internal to the network but access resources they would not normally be allowed. Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 3:

Telecommunications and Network Security (page 74).

NEW QUESTION 10

- (Topic 1)

What is called the type of access control where there are pairs of elements that have the least upper bound of values and greatest lower bound of values?

- A. Mandatory model
- B. Discretionary model
- C. Lattice model
- D. Rule model

Answer: C

Explanation:

In a lattice model, there are pairs of elements that have the least upper bound of values and greatest lower bound of values.

Reference(s) used for this question:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 34.

NEW QUESTION 15

- (Topic 1)

Which of the following biometric characteristics cannot be used to uniquely authenticate an individual's identity?

- A. Retina scans
- B. Iris scans
- C. Palm scans
- D. Skin scans

Answer: D

Explanation:

The following are typical biometric characteristics that are used to uniquely authenticate an individual's identity:
 Fingerprints Retina scans Iris scans Facial scans Palm scans Hand geometry Voice
 Handwritten signature dynamics

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 39.
 And: HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw-Hill/Osborne, 2002, chapter 4: Access Control (pages 127-131).

NEW QUESTION 17

- (Topic 1)

To control access by a subject (an active entity such as individual or process) to an object (a passive entity such as a file) involves setting up:

- A. Access Rules
- B. Access Matrix
- C. Identification controls
- D. Access terminal

Answer: A

Explanation:

Controlling access by a subject (an active entity such as individual or process) to an object (a passive entity such as a file) involves setting up access rules. These rules can be classified into three access control models: Mandatory, Discretionary, and Non-Discretionary.

An access matrix is one of the means used to implement access control.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 33.

NEW QUESTION 21

- (Topic 1)

Which of the following would be used to implement Mandatory Access Control (MAC)?

- A. Clark-Wilson Access Control
- B. Role-based access control
- C. Lattice-based access control
- D. User dictated access control

Answer: C

Explanation:

The lattice is a mechanism use to implement Mandatory Access Control (MAC)

Under Mandatory Access Control (MAC) you have: Mandatory Access Control

Under Non Discretionary Access Control (NDAC) you have: Rule-Based Access Control
 Role-Based Access Control

Under Discretionary Access Control (DAC) you have: Discretionary Access Control

The Lattice Based Access Control is a type of access control used to implement other access control method. A lattice is an ordered list of elements that has a least upper bound and a most lower bound. The lattice can be used for MAC, DAC, Integrity level, File Permission, and more

For example in the case of MAC, if we look at common government classifications, we have the following:

TOP SECRET

SECRET -----I am the user at secret CONFIDENTIAL

SENSITIVE BUT UNCLASSIFIED UNCLASSIFIED

If you look at the diagram above where I am a user at SECRET it means that I can access document at lower classification but not document at TOP SECRET.

The lattice is a list of ORDERED ELEMENT, in this case the ordered elements are classification levels. My least upper bound is SECRET and my most lower bound is UNCLASSIFIED.

However the lattice could also be used for Integrity Levels such as: VERY HIGH

HIGH

MEDIUM -----I am a user, process, application at the medium level LOW

VERY LOW

In the case of of Integrity levels you have to think about TRUST. Of course if I take for example the the VISTA operating system which is based on Biba then Integrity Levels would be used. As a user having access to the system I cannot tell a process running with administrative privilege what to do. Else any users on the system could take control of the system by getting highly privilege process to do things on their behalf. So no read down would be allowed in this case and this is an example of the Biba model.

Last but not least the lattice could be use for file permissions: RWX

RW -----User at this level

R

If I am a user with READ and WRITE (RW) access privilege then I cannot execute the file because I do not have execute permission which is the X under linux and UNIX.

Many people confuse the Lattice Model and many books says MAC = LATTICE, however the lattice can be use for other purposes.

There is also Role Based Access Control (RBAC) that exists out there. It COULD be used to simulate MAC but it is not MAC as it does not make use of Label on objects indicating sensitivity and categories. MAC also require a clearance that dominates the object.

You can get more info about RBAC at:<http://csrc.nist.gov/groups/SNS/rbac/faq.html#03> Also note that many book uses the same acronym for Role Based Access Control and Rule

Based Access Control which is RBAC, this can be confusing.

The proper way of writing the acronym for Rule Based Access Control is RuBAC, unfortunately it is not commonly used.

References:

There is a great article on technet that talks about the lattice in VISTA: <http://blogs.technet.com/b/steriley/archive/2006/07/21/442870.aspx>

also see:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 2: Access

control systems (page 33).
and
http://www.microsoft-watch.com/content/vista/gaging_vistas_integrity.html

NEW QUESTION 24

- (Topic 1)

Which of the following offers advantages such as the ability to use stronger passwords, easier password administration, one set of credential, and faster resource access?

- A. Smart cards
- B. Single Sign-On (SSO)
- C. Symmetric Ciphers
- D. Public Key Infrastructure (PKI)

Answer: B

Explanation:

The advantages of SSO include having the ability to use stronger passwords, easier administration as far as changing or deleting the passwords, minimize the risks of orphan accounts, and requiring less time to access resources.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 39.

NEW QUESTION 27

- (Topic 1)

Which of the following access control techniques best gives the security officers the ability to specify and enforce enterprise-specific security policies in a way that maps naturally to an organization's structure?

- A. Access control lists
- B. Discretionary access control
- C. Role-based access control
- D. Non-mandatory access control

Answer: C

Explanation:

Role-based access control (RBAC) gives the security officers the ability to specify and enforce enterprise-specific security policies in a way that maps naturally to an organization's structure. Each user is assigned one or more roles, and each role is assigned one or more privileges that are given to users in that role. An access control list (ACL) is a table that tells a system which access rights each user has to a particular system object. With discretionary access control, administration is decentralized and owners of resources control other users' access. Non-mandatory access control is not a defined access control technique.

Source: ANDRESS, Mandy, Exam Cram CISSP, Coriolis, 2001, Chapter 2: Access Control Systems and Methodology (page 9).

NEW QUESTION 28

- (Topic 1)

In the Bell-LaPadula model, the Star-property is also called:

- A. The simple security property
- B. The confidentiality property
- C. The confinement property
- D. The tranquility property

Answer: B

Explanation:

The Bell-LaPadula model focuses on data confidentiality and access to classified information, in contrast to the Biba Integrity Model which describes rules for the protection of data integrity.

In this formal model, the entities in an information system are divided into subjects and objects.

The notion of a "secure state" is defined, and it is proven that each state transition preserves security by moving from secure state to secure state, thereby proving that the system satisfies the security objectives of the model.

The Bell-LaPadula model is built on the concept of a state machine with a set of allowable states in a system. The transition from one state to another state is defined by transition functions.

A system state is defined to be "secure" if the only permitted access modes of subjects to objects are in accordance with a security policy.

To determine whether a specific access mode is allowed, the clearance of a subject is compared to the classification of the object (more precisely, to the combination of classification and set of compartments, making up the security level) to determine if the subject is authorized for the specific access mode.

The clearance/classification scheme is expressed in terms of a lattice. The model defines two mandatory access control (MAC) rules and one discretionary access control (DAC) rule with three security properties:

The Simple Security Property - a subject at a given security level may not read an object at a higher security level (no read-up).

The property (read "star"-property) - a subject at a given security level must not write to any object at a lower security level (no write-down). The property is also known as the Confinement property.

The Discretionary Security Property - use an access control matrix to specify the discretionary access control.

The transfer of information from a high-sensitivity document to a lower-sensitivity document may happen in the Bell-LaPadula model via the concept of trusted subjects. Trusted Subjects are not restricted by the property. Untrusted subjects are.

Trusted Subjects must be shown to be trustworthy with regard to the security policy. This security model is directed toward access control and is characterized by the phrase: "no read up, no write down." Compare the Biba model, the Clark-Wilson model and the Chinese Wall.

With Bell-LaPadula, users can create content only at or above their own security level (i.e. secret researchers can create secret or top-secret files but may not create public files; no write-down). Conversely, users can view content only at or below their own security level (i.e. secret researchers can view public or secret files, but may not view top-secret files; no read-up).

Strong Property

The Strong Property is an alternative to the Property in which subjects may write to objects with only a matching security level. Thus, the write-up operation permitted in the usual Property is not present, only a write-to-same level operation. The Strong Property is usually discussed in the context of multilevel database management systems and is motivated by integrity concerns.

Tranquility principle

The tranquility principle of the Bell-LaPadula model states that the classification of a subject or object does not change while it is being referenced. There are two forms to the tranquility principle: the "principle of strong tranquility" states that security levels do not change during the normal operation of the system and the "principle of weak tranquility" states that security levels do not change in a way that violates the rules of a given security policy. Another interpretation of the tranquility principles is that they both apply only to the period of time during which an operation involving an object or subject is occurring. That is, the strong tranquility principle means that an object's security level/label will not change during an operation (such as read or write); the weak tranquility principle means that an object's security level/label may change in a way that does not violate the security policy during an operation. Reference(s) used for this question: http://en.wikipedia.org/wiki/Biba_Model http://en.wikipedia.org/wiki/Mandatory_access_control http://en.wikipedia.org/wiki/Discretionary_access_control http://en.wikipedia.org/wiki/Clark-Wilson_model http://en.wikipedia.org/wiki/Brewer_and_Nash_model

NEW QUESTION 30

- (Topic 1)

In which of the following model are Subjects and Objects identified and the permissions applied to each subject/object combination are specified. Such a model can be used to quickly summarize what permissions a subject has for various system objects.

- A. Access Control Matrix model
- B. Take-Grant model
- C. Bell-LaPadula model
- D. Biba model

Answer: A

Explanation:

An access control matrix is a table of subjects and objects indicating what actions individual subjects can take upon individual objects. Matrices are data structures that programmers implement as table lookups that will be used and enforced by the operating system.

This type of access control is usually an attribute of DAC models. The access rights can be assigned directly to the subjects (capabilities) or to the objects (ACLs). Capability Table

A capability table specifies the access rights a certain subject possesses pertaining to specific objects. A capability table is different from an ACL because the subject is bound to the capability table, whereas the object is bound to the ACL.

Access control lists (ACLs)

ACLs are used in several operating systems, applications, and router configurations. They are lists of subjects that are authorized to access a specific object, and they define what level of authorization is granted. Authorization can be specific to an individual, group, or role. ACLs map values from the access control matrix to the object.

Whereas a capability corresponds to a row in the access control matrix, the ACL corresponds to a column of the matrix.

NOTE: Ensure you are familiar with the terms Capability and ACLs for the purpose of the exam.

Resource(s) used for this question:

Harris, Shon (2012-10-25). *CISSP All-in-One Exam Guide, 6th Edition* (Kindle Locations 5264-5267). McGraw-Hill. Kindle Edition.

or

Harris, Shon (2012-10-25). *CISSP All-in-One Exam Guide, 6th Edition*, Page 229 and

Hernandez *CISSP*, Steven (2012-12-21). *Official (ISC)2 Guide to the CISSP CBK, Third Edition* ((ISC)2 Press) (Kindle Locations 1923-1925). Auerbach Publications. Kindle Edition.

NEW QUESTION 34

- (Topic 1)

Which of the following centralized access control mechanisms is the least appropriate for mobile workers accessing the corporate network over analog lines?

- A. TACACS
- B. Call-back
- C. CHAP
- D. RADIUS

Answer: B

Explanation:

Call-back allows for a distant user connecting into a system to be called back at a number already listed in a database of trusted users. The disadvantage of this system is that the user must be at a fixed location whose phone number is known to the authentication server. Being mobile workers, users are accessing the system from multiple

locations, making call-back inappropriate for them.

Source: KRUTZ, Ronald L. & VINES, Russel D., *The CISSP Prep Guide: Mastering the Ten Domains of Computer Security*, John Wiley & Sons, 2001, Chapter 2: Access control systems (page 44).

NEW QUESTION 39

- (Topic 1)

The number of violations that will be accepted or forgiven before a violation record is produced is called which of the following?

- A. clipping level
- B. acceptance level
- C. forgiveness level
- D. logging level

Answer: A

Explanation:

The correct answer is "clipping level". This is the point at which a system decides to take some sort of action when an action repeats a preset number of times. That action may be to log the activity, lock a user account, temporarily close a port, etc.

Example: The most classic example of a clipping level is failed login attempts. If you have a system configured to lock a user's account after three failed login attempts, that is the "clipping level".

The other answers are not correct because:

Acceptance level, forgiveness level, and logging level are nonsensical terms that do not exist (to my knowledge) within network security.

Reference:

Official ISC2 Guide - The term "clipping level" is not in the glossary or index of that book. I cannot find it in the text either. However, I'm quite certain that it would be considered part of the CBK, despite its exclusion from the Official Guide.
All in One Third Edition page: 136 - 137

NEW QUESTION 40

- (Topic 1)

In discretionary access environments, which of the following entities is authorized to grant information access to other people?

- A. Manager
- B. Group Leader
- C. Security Manager
- D. Data Owner

Answer: D

Explanation:

In Discretionary Access Control (DAC) environments, the user who creates a file is also considered the owner and has full control over the file including the ability to set permissions for that file.

The following answers are incorrect:

manager. Is incorrect because in Discretionary Access Control (DAC) environments it is the owner/user that is authorized to grant information access to other people.

group leader. Is incorrect because in Discretionary Access Control (DAC) environments it is the owner/user that is authorized to grant information access to other people.

security manager. Is incorrect because in Discretionary Access Control (DAC) environments it is the owner/user that is authorized to grant information access to other people.

IMPORTANT NOTE:

The term Data Owner is also used within Classifications as well. Under the subject of classification the Data Owner is a person from management who has been entrusted with a data set that belongs to the company. For example it could be the Chief Financial Officer (CFO) who is entrusted with all of the financial data for a company. As such the CFO would determine the classification of the financial data and who can access as well. The Data Owner would then tell the Data Custodian (a technical person) what the classification and need to know is on the specific set of data.

The term Data Owner under DAC simply means whoever created the file and as the creator of the file the owner has full access and can grant access to other subjects based on their identity.

NEW QUESTION 44

- (Topic 1)

Controls to keep password sniffing attacks from compromising computer systems include which of the following?

- A. static and recurring passwords.
- B. encryption and recurring passwords.
- C. one-time passwords and encryption.
- D. static and one-time passwords.

Answer: C

Explanation:

To minimize the chance of passwords being captured one-time passwords would prevent a password sniffing attack because once used it is no longer valid.

Encryption will also minimize these types of attacks.

The following answers are correct:

static and recurring passwords. This is incorrect because if there is no encryption then someone password sniffing would be able to capture the password much easier if it never changed.

encryption and recurring passwords. This is incorrect because while encryption helps, recurring passwords do nothing to minimize the risk of passwords being captured.

static and one-time passwords. This is incorrect because while one-time passwords will prevent these types of attacks, static passwords do nothing to minimize the risk of passwords being captured.

NEW QUESTION 48

- (Topic 1)

Which of the following is NOT a system-sensing wireless proximity card?

- A. magnetically striped card
- B. passive device
- C. field-powered device
- D. transponder

Answer: A

Explanation:

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, page 342.

NEW QUESTION 50

- (Topic 1)

Which integrity model defines a constrained data item, an integrity verification procedure and a transformation procedure?

- A. The Take-Grant model
- B. The Biba integrity model
- C. The Clark Wilson integrity model
- D. The Bell-LaPadula integrity model

Answer: C

Explanation:

The Clark Wilson integrity model addresses the three following integrity goals: 1) data is protected from modification by unauthorized users; 2) data is protected from unauthorized modification by authorized users; and 3) data is internally and externally consistent. It also defines a Constrained Data Item (CDI), an Integrity Verification Procedure (IVP), a Transformation Procedure (TP) and an Unconstrained Data item. The Bell-LaPadula and Take-Grant models are not integrity models.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 5: Security Architecture and Models (page 205).

NEW QUESTION 55

- (Topic 1)

Which of the following can best eliminate dial-up access through a Remote Access Server as a hacking vector?

- A. Using a TACACS+ server.
- B. Installing the Remote Access Server outside the firewall and forcing legitimate users to authenticate to the firewall.
- C. Setting modem ring count to at least 5.
- D. Only attaching modems to non-networked hosts.

Answer: B

Explanation:

Containing the dial-up problem is conceptually easy: by installing the Remote Access Server outside the firewall and forcing legitimate users to authenticate to the firewall, any access to internal resources through the RAS can be filtered as would any other connection coming from the Internet.

The use of a TACACS+ Server by itself cannot eliminate hacking.

Setting a modem ring count to 5 may help in defeating war-dialing hackers who look for modem by dialing long series of numbers.

Attaching modems only to non-networked hosts is not practical and would not prevent these hosts from being hacked.

Source: STREBE, Matthew and PERKINS, Charles, Firewalls 24seven, Sybex 2000, Chapter 2: Hackers.

NEW QUESTION 57

- (Topic 1)

What does the Clark-Wilson security model focus on?

- A. Confidentiality
- B. Integrity
- C. Accountability
- D. Availability

Answer: B

Explanation:

The Clark-Wilson model addresses integrity. It incorporates mechanisms to enforce internal and external consistency, a separation of duty, and a mandatory integrity policy.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 5: Security Architectures and Models (page 205).

NEW QUESTION 59

- (Topic 1)

Which access control type has a central authority that determine to what objects the subjects have access to and it is based on role or on the organizational security policy?

- A. Mandatory Access Control
- B. Discretionary Access Control
- C. Non-Discretionary Access Control
- D. Rule-based Access control

Answer: C

Explanation:

Non Discretionary Access Control include Role Based Access Control (RBAC) and Rule Based Access Control (RBAC or RuBAC). RABC being a subset of NDAC, it was easy to eliminate RBAC as it was covered under NDAC already.

Some people think that RBAC is synonymous with NDAC but RuBAC would also fall into this category.

Discretionary Access control is for environment with very low level of security. There is no control on the dissemination of the information. A user who has access to a file can copy the file or further share it with other users.

Rule Based Access Control is when you have ONE set of rules applied uniformly to all users. A good example would be a firewall at the edge of your network. A single rule based is applied against any packets received from the internet.

Mandatory Access Control is a very rigid type of access control. The subject must dominate the object and the subject must have a Need To Know to access the information. Objects have labels that indicate the sensitivity (classification) and there is also categories to enforce the Need To Know (NTK).

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 33.

NEW QUESTION 60

- (Topic 1)

Single Sign-on (SSO) is characterized by which of the following advantages?

- A. Convenience
- B. Convenience and centralized administration
- C. Convenience and centralized data administration
- D. Convenience and centralized network administration

Answer: B

Explanation:

Convenience -Using single sign-on users have to type their passwords only once when they first log in to access all the network resources; and Centralized Administration as some single sign-on systems are built around a unified server administration system. This allows a single administrator to add and delete accounts across the entire network from one user interface.

The following answers are incorrect:

Convenience - alone this is not the correct answer.

Centralized Data or Network Administration - these are thrown in to mislead the student. Neither are a benefit to SSO, as these specifically should not be allowed with just an SSO.

References: TIPTON, Harold F. & KRAUSE, MICKI, Information Security Management Handbook, 4th Edition, Volume 1, page 35.

TIPTON, Harold F. & HENRY, Kevin, Official (ISC)2 Guide to the CISSP CBK, 2007, page 180.

NEW QUESTION 64

- (Topic 1)

What is the PRIMARY use of a password?

- A. Allow access to files.
- B. Identify the user.
- C. Authenticate the user.
- D. Segregate various user's accesses.

Answer: C

Explanation:

Source: TIPTON, Hal, (ISC)2, Introduction to the CISSP Exam presentation.

NEW QUESTION 68

- (Topic 1)

Which of the following is used by RADIUS for communication between clients and servers?

- A. TCP
- B. SSL
- C. UDP
- D. SSH

Answer: C

Explanation:

Source: TIPTON, Harold F. & KRAUSE, MICKI, Information Security Management Handbook, 4th Edition, Volume 2, 2001, CRC Press, NY, Page 33.

NEW QUESTION 69

- (Topic 1)

Which of the following would assist the most in Host Based intrusion detection?

- A. audit trails.
- B. access control lists.
- C. security clearances.
- D. host-based authentication.

Answer: A

Explanation:

To assist in Intrusion Detection you would review audit logs for access violations.

The following answers are incorrect:

access control lists. This is incorrect because access control lists determine who has access to what but do not detect intrusions.

security clearances. This is incorrect because security clearances determine who has access to what but do not detect intrusions.

host-based authentication. This is incorrect because host-based authentication determine who have been authenticated to the system but do not detect intrusions.

NEW QUESTION 73

- (Topic 1)

What is called a password that is the same for each log-on session?

- A. "one-time password"
- B. "two-time password"
- C. static password
- D. dynamic password

Answer: C

Explanation:

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 36.

NEW QUESTION 78

- (Topic 1)

Which of the following is the most reliable authentication method for remote access?

- A. Variable callback system
- B. Synchronous token
- C. Fixed callback system
- D. Combination of callback and caller ID

Answer: B

Explanation:

A Synchronous token generates a one-time password that is only valid for a short period of time. Once the password is used it is no longer valid, and it expires if not entered in the acceptable time frame.

The following answers are incorrect:

Variable callback system. Although variable callback systems are more flexible than fixed callback systems, the system assumes the identity of the individual unless two-factor authentication is also implemented. By itself, this method might allow an attacker access as a trusted user.

Fixed callback system. Authentication provides assurance that someone or something is who or what he/it is supposed to be. Callback systems authenticate a person, but anyone can pretend to be that person. They are tied to a specific place and phone number, which can be spoofed by implementing call-forwarding.

Combination of callback and Caller ID. The caller ID and callback functionality provides greater confidence and auditability of the caller's identity. By disconnecting and calling back only authorized phone numbers, the system has a greater confidence in the location of the call. However, unless combined with strong authentication, any individual at the location could obtain access.

The following reference(s) were/was used to create this question: Shon Harris AIO v3 p. 140, 548

ISC2 OIG 2007 p. 152-153, 126-127

NEW QUESTION 82

- (Topic 1)

What is the main objective of proper separation of duties?

- A. To prevent employees from disclosing sensitive information.
- B. To ensure access controls are in place.
- C. To ensure that no single individual can compromise a system.
- D. To ensure that audit trails are not tampered with.

Answer: C

Explanation:

The primary objective of proper separation of duties is to ensure that one person acting alone cannot compromise the company's security in any way. A proper separation of duties does not prevent employees from disclosing information, nor does it ensure that access controls are in place or that audit trails are not tampered with. Source: HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw- Hill/Osborne, 2002, Chapter 12: Operations Security (Page 808).

NEW QUESTION 87

- (Topic 1)

Which of the following would constitute the best example of a password to use for access to a system by a network administrator?

- A. holiday
- B. Christmas12
- C. Jenny
- D. GyN19Za!

Answer: D

Explanation:

GyN19Za! would be the the best answer because it contains a mixture of upper and lower case characters, alphabetic and numeric characters, and a special character making it less vulnerable to password attacks.

All of the other answers are incorrect because they are vulnerable to brute force or dictionary attacks. Passwords should not be common words or names. The addition of a number to the end of a common word only marginally strengthens it because a common password attack would also check combinations of words: Christmas23 Christmas123 etc...

NEW QUESTION 88

- (Topic 1)

Which of the following is not a physical control for physical security?

- A. lighting
- B. fences
- C. training
- D. facility construction materials

Answer: C

Explanation:

Some physical controls include fences, lights, locks, and facility construction materials. Some administrative controls include facility selection and construction, facility management, personnel controls, training, and emergency response and procedures.

From: HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw-Hill/Osborne, 3rd. Ed., Chapter 6, page 403.

NEW QUESTION 91

- (Topic 1)

The three classic ways of authenticating yourself to the computer security software are by something you know, by something you have, and by something:

- A. you need.
- B. non-trivial
- C. you are.
- D. you can get.

Answer: C

Explanation:

This is more commonly known as biometrics and is one of the most accurate ways to authenticate an individual. The rest of the answers are incorrect because they are not one of the three recognized forms for Authentication.

NEW QUESTION 92

- (Topic 1)

Which of the following control pairings include: organizational policies and procedures, pre-employment background checks, strict hiring practices, employment agreements, employee termination procedures, vacation scheduling, labeling of sensitive materials, increased supervision, security awareness training, behavior awareness, and sign-up procedures to obtain access to information systems and networks?

- A. Preventive/Administrative Pairing
- B. Preventive/Technical Pairing
- C. Preventive/Physical Pairing
- D. Detective/Administrative Pairing

Answer: A

Explanation:

The Answer: Preventive/Administrative Pairing: These mechanisms include organizational policies and procedures, pre-employment background checks, strict hiring practices, employment agreements, friendly and unfriendly employee termination procedures, vacation scheduling, labeling of sensitive materials, increased supervision, security awareness training, behavior awareness, and sign-up procedures to obtain access to information systems and networks.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 34.

NEW QUESTION 97

- (Topic 1)

Which of the following statements relating to the Bell-LaPadula security model is FALSE (assuming the Strong Star property is not being used) ?

- A. A subject is not allowed to read up.
- B. The property restriction can be escaped by temporarily downgrading a high level subject.
- C. A subject is not allowed to read down.
- D. It is restricted to confidentiality.

Answer: C

Explanation:

It is not a property of Bell LaPadula model. The other answers are incorrect because:

A subject is not allowed to read up is a property of the 'simple security rule' of Bell LaPadula model.

The property restriction can be escaped by temporarily downgrading a high level subject can be escaped by temporarily downgrading a high level subject or by identifying a set of trusted objects which are permitted to violate the property as long as it is not in the middle of an operation.

It is restricted to confidentiality as it is a state machine model that enforces the confidentiality aspects of access control.

Reference: Shon Harris AIO v3 , Chapter-5 : Security Models and Architecture , Page:279-282

NEW QUESTION 100

- (Topic 1)

Guards are appropriate whenever the function required by the security program involves which of the following?

- A. The use of discriminating judgment
- B. The use of physical force
- C. The operation of access control devices
- D. The need to detect unauthorized access

Answer: A

Explanation:

The Answer The use of discriminating judgment, a guard can make the determinations that hardware or other automated security devices cannot make due to its ability to adjust to rapidly changing conditions, to learn and alter recognizable patterns, and to respond to various conditions in the environment. Guards are better at making value decisions at times of incidents. They are appropriate whenever immediate, discriminating judgment is required by the security entity.

The following answers are incorrect:

The use of physical force This is not the best answer. A guard provides discriminating judgment, and the ability to discern the need for physical force.

The operation of access control devices A guard is often uninvolved in the operations of an automated access control device such as a biometric reader, a smart lock, mantrap, etc. The need to detect unauthorized access The primary function of a guard is not to detect unauthorized access, but to prevent unauthorized physical access attempts and may deter social engineering attempts.

The following reference(s) were/was used to create this question:

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 10: Physical security (page 339).

Source: ISC2 Official Guide to the CBK page 288-289.

NEW QUESTION 104

- (Topic 1)

Which of the following statements pertaining to biometrics is false?

- A. Increased system sensitivity can cause a higher false rejection rate
- B. The crossover error rate is the point at which false rejection rate equals the false acceptance rate.
- C. False acceptance rate is also known as Type II error.
- D. Biometrics are based on the Type 2 authentication mechanism.

Answer: D

Explanation:

Authentication is based on three factor types: type 1 is something you know, type 2 is something you have and type 3 is something you are. Biometrics are based on the Type 3 authentication mechanism.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 2: Access control systems (page 37).

NEW QUESTION 108

- (Topic 1)

In regards to information classification what is the main responsibility of information (data) owner?

- A. determining the data sensitivity or classification level
- B. running regular data backups
- C. audit the data users
- D. periodically check the validity and accuracy of the data

Answer: A

Explanation:

Making the determination to decide what level of classification the information requires is the main responsibility of the data owner.

The data owner within classification is a person from Management who has been entrusted with a data set that belong to the company. It could be for example the Chief Financial Officer (CFO) who has been entrusted with all financial data or it could be the Human Resource Director who has been entrusted with all Human Resource data. The information owner will decide what classification will be applied to the data based on Confidentiality, Integrity, Availability, Criticality, and Sensitivity of the data.

The Custodian is the technical person who will implement the proper classification on objects in accordance with the Data Owner. The custodian DOES NOT decide what classification to apply, it is the Data Owner who will dictate to the Custodian what is the classification to apply.

NOTE:

The term Data Owner is also used within Discretionary Access Control (DAC). Within DAC it means the person who has created an object. For example, if I create a file on my system then I am the owner of the file and I can decide who else could get access to the file. It is left to my discretion. Within DAC access is granted based solely on the Identity of the subject, this is why sometimes DAC is referred to as Identity Based Access Control.

The other choices were not the best answer

Running regular backups is the responsibility of custodian. Audit the data users is the responsibility of the auditors

Periodically check the validity and accuracy of the data is not one of the data owner responsibility

Reference(s) used for this question:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Page 14, Chapter 1: Security Management Practices.

NEW QUESTION 112

- (Topic 1)

Which of the following is not a security goal for remote access?

- A. Reliable authentication of users and systems
- B. Protection of confidential data
- C. Easy to manage access control to systems and network resources
- D. Automated login for remote users

Answer: D

Explanation:

An automated login function for remote users would imply a weak authentication, thus certainly not a security goal.

Source: TIPTON, Harold F. & KRAUSE, Micki, Information Security Management Handbook, 4th edition, volume 2, 2001, CRC Press, Chapter 5: An Introduction to Secure Remote Access (page 100).

NEW QUESTION 116

- (Topic 1)

What is called the use of technologies such as fingerprint, retina, and iris scans to authenticate the individuals requesting access to resources?

- A. Micrometrics
- B. Macrometrics
- C. Biometrics
- D. MicroBiometrics

Answer: C

Explanation:

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 35.

NEW QUESTION 118

- (Topic 1)

Which of the following forms of authentication would most likely apply a digital signature algorithm to every bit of data that is sent from the claimant to the verifier?

- A. Dynamic authentication
- B. Continuous authentication
- C. Encrypted authentication
- D. Robust authentication

Answer: B

Explanation:

Continuous authentication is a type of authentication that provides protection against impostors who can see, alter, and insert information passed between the claimant and verifier even after the claimant/verifier authentication is complete. These are typically referred to as active attacks, since they assume that the imposter can actively influence the connection between claimant and verifier. One way to provide this form of authentication is to apply a digital signature algorithm to every bit of data that is sent from the claimant to the verifier. There are other combinations of cryptography that can provide this form of authentication but current strategies rely on applying some type of cryptography to every bit

of data sent. Otherwise, any unprotected bit would be suspect. Robust authentication relies on dynamic authentication data that changes with each authenticated session between a claimant and a verifier, but does not provide protection against active attacks. Encrypted authentication is a distracter.

Source: GUTTMAN, Barbara & BAGWILL, Robert, NIST Special Publication 800-xx, Internet Security Policy: A Technical Guide, Draft Version, May 25, 2000 (page 34).

NEW QUESTION 120

- (Topic 1)

The Orange Book is founded upon which security policy model?

- A. The Biba Model
- B. The Bell LaPadula Model
- C. Clark-Wilson Model
- D. TEMPEST

Answer: B

Explanation:

From the glossary of Computer Security Basics:

The Bell-LaPadula model is the security policy model on which the Orange Book requirements are based. From the Orange Book definition, "A formal state transition model of computer security policy that describes a set of access control rules. In this formal model, the entities in a computer system are divided into abstract sets of subjects and objects. The notion of secure state is defined and it is proven that each state transition preserves security by moving from secure state to secure state; thus, inductively proving the system is secure. A system state is defined to be 'secure' if the only permitted access modes of subjects to objects are in accordance with a specific security policy. In order to determine whether or not a specific access mode is allowed, the clearance of a subject is compared to the classification of the object and a determination is made as to whether the subject is authorized for the specific access mode."

The Biba Model is an integrity model of computer security policy that describes a set of rules. In this model, a subject may not depend on any object or other subject that is less trusted than itself.

The Clark Wilson Model is an integrity model for computer security policy designed for a commercial environment. It addresses such concepts as nondiscretionary access control, privilege separation, and least privilege. TEMPEST is a government program that prevents the compromising electrical and electromagnetic signals that emanate from computers and related equipment from being intercepted and deciphered.

Source: RUSSEL, Deborah & GANGEMI, G.T. Sr., Computer Security Basics, O'Reilly, 1991.

Also: U.S. Department of Defense, Trusted Computer System Evaluation Criteria (Orange Book), DOD 5200.28-STD. December 1985 (also available here).

NEW QUESTION 124

- (Topic 1)

Which of the following questions is less likely to help in assessing physical access controls?

- A. Does management regularly review the list of persons with physical access to sensitive facilities?
- B. Is the operating system configured to prevent circumvention of the security software and application controls?
- C. Are keys or other access devices needed to enter the computer room and media library?
- D. Are visitors to sensitive areas signed in and escorted?

Answer: B

Explanation:

Physical security and environmental security are part of operational controls, and are measures taken to protect systems, buildings, and related supporting infrastructures against threats associated with their physical environment. All the questions above are useful in assessing physical access controls except for the one regarding operating system configuration, which is a logical access control.

Source: SWANSON, Marianne, NIST Special Publication 800-26, Security Self- Assessment Guide for Information Technology Systems, November 2001 (Pages A-21 to A-24).

NEW QUESTION 125

- (Topic 1)

Which of the following biometric parameters are better suited for authentication use over a long period of time?

- A. Iris pattern
- B. Voice pattern
- C. Signature dynamics
- D. Retina pattern

Answer: A

Explanation:

The iris pattern is considered lifelong. Unique features of the iris are: freckles, rings, rifts, pits, striations, fibers, filaments, furrows, vasculature and coronas. Voice, signature and retina patterns are more likely to change over time, thus are not as suitable for authentication over a long period of time without needing re-enrollment. Source: FERREL, Robert G, Questions and Answers for the CISSP Exam, domain 1 (derived from the Information Security Management Handbook, 4th Ed., by Tipton & Krause).

NEW QUESTION 126

- (Topic 1)

What is called the percentage at which the False Rejection Rate equals the False Acceptance Rate?

- A. False Rejection Rate (FRR) or Type I Error
- B. False Acceptance Rate (FAR) or Type II Error

- C. Crossover Error Rate (CER)
- D. Failure to enroll rate (FTE or FER)

Answer: C

Explanation:

The percentage at which the False Rejection Rate equals the False Acceptance Rate is called the Crossover Error Rate (CER). Another name for the CER is the Equal Error Rate (EER), any of the two terms could be used.

Equal error rate or crossover error rate (EER or CER)

It is the rate at which both accept and reject errors are equal. The EER is a quick way to compare the accuracy of devices with different ROC curves. In general, the device with the lowest EER is most accurate.

The other choices were all wrong answers:

The following are used as performance metrics for biometric systems:

false accept rate or false match rate (FAR or FMR): the probability that the system incorrectly matches the input pattern to a non-matching template in the database. It measures the percent of invalid inputs which are incorrectly accepted. This is when an impostor would be accepted by the system.

False reject rate or false non-match rate (FRR or FNMR): the probability that the system fails to detect a match between the input pattern and a matching template in the database. It measures the percent of valid inputs which are incorrectly rejected. This is when a valid company employee would be rejected by the system.

Failure to enroll rate (FTE or FER): the rate at which attempts to create a template from an input is unsuccessful. This is most commonly caused by low quality inputs.

Reference(s) used for this question:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 38.

and <https://en.wikipedia.org/wiki/Biometrics>

NEW QUESTION 131

- (Topic 1)

Which of the following would be true about Static password tokens?

- A. The owner identity is authenticated by the token
- B. The owner will never be authenticated by the token.
- C. The owner will authenticate himself to the system.
- D. The token does not authenticates the token owner but the system.

Answer: A

Explanation:

Password Tokens

Tokens are electronic devices or cards that supply a user's password for them. A token system can be used to supply either a static or a dynamic password. There is a big difference between the static and dynamic systems, a static system will normally log a user in but a dynamic system the user will often have to log themselves in.

Static Password Tokens:

The owner identity is authenticated by the token. This is done by the person who issues the token to the owner (normally the employer). The owner of the token is now authenticated by "something you have". The token authenticates the identity of the owner to the information system. An example of this occurring is when an employee swipes his or her smart card over an electronic lock to gain access to a store room.

Synchronous Dynamic Password Tokens:

This system is a lot more complex than the static token password. The synchronous dynamic password tokens generate new passwords at certain time intervals that are synched with the main system. The password is generated on a small device similar to a pager or a calculator that can often be attached to the user's key ring. Each password is only valid for a certain time period, typing in the wrong password in the wrong time period will invalidate the authentication. The time factor can also be the systems downfall. If a clock on the system or the password token device becomes out of synch, a user can have troubles authenticating themselves to the system.

Asynchronous Dynamic Password Tokens:

The clock synching problem is eliminated with asynchronous dynamic password tokens. This system works on the same principal as the synchronous one but it does not have a time frame. A lot of big companies use this system especially for employee's who may work from home on the companies VPN (Virtual private Network).

Challenge Response Tokens:

This is an interesting system. A user will be sent special "challenge" strings at either random or timed intervals. The user inputs this challenge string into their token device and the device will respond by generating a challenge response. The user then types this response into the system and if it is correct they are authenticated.

Reference(s) used for this question: <http://www.informit.com/guides/content.aspx?g=security&seqNum=146>

and

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 37.

NEW QUESTION 132

- (Topic 1)

Which of the following is not a two-factor authentication mechanism?

- A. Something you have and something you know.
- B. Something you do and a password.
- C. A smartcard and something you are.
- D. Something you know and a password.

Answer: D

Explanation:

Something you know and a password fits within only one of the three ways authentication could be done. A password is an example of something you know, thereby something you know and a password does not constitute a two-factor authentication as both are in the same category of factors.

A two-factor (strong) authentication relies on two different kinds of authentication factors out of a list of three possible choice:

something you know (e.g. a PIN or password),

something you have (e.g. a smart card, token, magnetic card),

something you are is mostly Biometrics (e.g. a fingerprint) or something you do (e.g. signature dynamics).

TIP FROM CLEMENT:

On the real exam you can expect to see synonyms and sometimes sub-categories under the main categories. People are familiar with Pin, Passphrase, Password

as subset of Something you know.

However, when people see choices such as Something you do or Something you are they immediately get confused and they do not think of them as subset of Biometrics where you have Biometric implementation based on behavior and physiological attributes. So something you do falls under the Something you are category as a subset.

Something your do would be signing your name or typing text on your keyboard for example.

Strong authentication is simply when you make use of two factors that are within two different categories.

Reference(s) used for this question:

Shon Harris, CISSP All In One, Fifth Edition, pages 158-159

NEW QUESTION 133

- (Topic 1)

Which security model ensures that actions that take place at a higher security level do not affect actions that take place at a lower level?

- A. The Bell-LaPadula model
- B. The information flow model
- C. The noninterference model
- D. The Clark-Wilson model

Answer: C

Explanation:

The goal of a noninterference model is to strictly separate differing security levels to assure that higher-level actions do not determine what lower-level users can see. This is in contrast to other security models that control information flows between differing levels of users, By maintaining strict separation of security levels, a noninterference model minimizes leakages that might happen through a covert channel.

The model ensures that any actions that take place at a higher security level do not affect, or interfere with, actions that take place at a lower level.

It is not concerned with the flow of data, but rather with what a subject knows about the state of the system. So if an entity at a higher security level performs an action, it can not change the state for the entity at the lower level.

The model also addresses the inference attack that occurs when some one has access to some type of information and can infer(guess) something that he does not have the clearance level or authority to know.

The following are incorrect answers:

The Bell-LaPadula model is incorrect. The Bell-LaPadula model is concerned only with confidentiality and bases access control decisions on the classification of objects and the clearances of subjects.

The information flow model is incorrect. The information flow models have a similar framework to the Bell-LaPadula model and control how information may flow between objects based on security classes. Information will be allowed to flow only in accordance with the security policy.

The Clark-Wilson model is incorrect. The Clark-Wilson model is concerned with change control and assuring that all modifications to objects preserve integrity by means of well- formed transactions and usage of an access triple (subject - interface - object).

References:

CBK, pp 325 - 326

AIO3, pp. 290 - 291

AIOv4 Security Architecture and Design (page 345)

AIOv5 Security Architecture and Design (pages 347 - 348)

https://en.wikibooks.org/wiki/Security_Architecture_and_Design/Security_Models#Noninterference_Models

NEW QUESTION 137

- (Topic 1)

Kerberos can prevent which one of the following attacks?

- A. tunneling attack.
- B. playback (replay) attack.
- C. destructive attack.
- D. process attack.

Answer: B

Explanation:

Each ticket in Kerberos has a timestamp and are subject to time expiration to

help prevent these types of attacks. The following answers are incorrect:

tunneling attack. This is incorrect because a tunneling attack is an attempt to bypass security and access low-level systems. Kerberos cannot totally prevent these types of attacks.

destructive attack. This is incorrect because depending on the type of destructive attack, Kerberos cannot prevent someone from physically destroying a server.

process attack. This is incorrect because with Kerberos cannot prevent an authorized individuals from running processes.

NEW QUESTION 139

- (Topic 1)

What does the (star) integrity axiom mean in the Biba model?

- A. No read up
- B. No write down
- C. No read down
- D. No write up

Answer: D

Explanation:

The (star) integrity axiom of the Biba access control model states that an object at one level of integrity is not permitted to modify an object of a higher level of integrity (no write up).

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 5: Security Architectures and Models (page 205).

NEW QUESTION 143

- (Topic 1)

Which division of the Orange Book deals with discretionary protection (need-to-know)?

- A. D
- B. C
- C. B
- D. A

Answer: B

Explanation:

C deals with discretionary protection. See matrix below:

TNI/TCSEC MATRIX

	A1	B3	B2	B1	C2	C1
DISCRETIONARY ACCESS						
Discretionary Access Control						
Identification and Authentication						
System Integrity						
System Architecture						
Security Testing						
Security Features User's Guide Trusted Facility Manual Design Documentation Test Documentation						
CONTROLLED ACCESS						
Protect Audit Trails						
Object Reuse						
MANDATORY ACCESS CONTROL						
Labels						
Mandatory Access Control						
Process isolation in system architecture						
Design Specification & Verification						
Device labels						
Subject Sensitivity Labels						
Trusted Path						
Separation of Administrator and User functions						
Covert Channel Analysis (Only Covert Storage Channel at B2)						
Trusted Facility Management						
Configuration Management						
Trusted Recovery						
Covert Channel Analysis (Both Timing and Covert Channel analysis at B3)						
Security Administrator Role Defined						
Monitor events and notify security personnel						
Trusted Distribution						
Formal Methods						
	A1	B3	B2	B1	C2	C1

C:\Users\MCS\Desktop\1.jpg

TCSEC Matric

The following are incorrect answers:

D is incorrect. D deals with minimal security.

B is incorrect. B deals with mandatory protection. A is incorrect. A deals with verified protection. Reference(s) used for this question:

CBK, p. 329 – 330

and

Shon Harris, CISSP All In One (AIO), 6th Edition , page 392-393

NEW QUESTION 145

- (Topic 1)

What is called an automated means of identifying or authenticating the identity of a living person based on physiological or behavioral characteristics?

- A. Biometrics
- B. Micrometrics
- C. Macrometrics
- D. MicroBiometrics

Answer: A

Explanation:

The Answer Biometrics; Biometrics are defined as an automated means of identifying or authenticating the identity of a living person based on physiological or behavioral characteristics.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Pages 37,38.

NEW QUESTION 149

- (Topic 1)

Which of the following statements pertaining to Kerberos is TRUE?

- A. Kerberos does not address availability
- B. Kerberos does not address integrity

- C. Kerberos does not make use of Symmetric Keys
- D. Kerberos cannot address confidentiality of information

Answer: A

Explanation:

The question was asking for a TRUE statement and the only correct statement is "Kerberos does not address availability". Kerberos addresses the confidentiality and integrity of information. It does not directly address availability.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 2: Access control systems (page 42).

NEW QUESTION 153

- (Topic 1)

Which of the following is NOT part of the Kerberos authentication protocol?

- A. Symmetric key cryptography
- B. Authentication service (AS)
- C. Principals
- D. Public Key

Answer: D

Explanation:

There is no such component within kerberos environment. Kerberos uses only symmetric encryption and does not make use of any public key component. The other answers are incorrect because :

Symmetric key cryptography is a part of Kerberos as the KDC holds all the users' and services' secret keys.

Authentication service (AS) : KDC (Key Distribution Center) provides an authentication service

Principals : Key Distribution Center provides services to principals , which can be users , applications or network services.

References: Shon Harris , AIO v3 , Chapter - 4: Access Control , Pages : 152-155.

NEW QUESTION 154

- (Topic 1)

The following is NOT a security characteristic we need to consider while choosing a biometric identification systems:

- A. data acquisition process
- B. cost
- C. enrollment process
- D. speed and user interface

Answer: B

Explanation:

Cost is a factor when considering Biometrics but it is not a security characteristic.

All the other answers are incorrect because they are security characteristics related to Biometrics.

data acquisition process can cause a security concern because if the process is not fast and efficient it can discourage individuals from using the process.

enrollment process can cause a security concern because the enrollment process has to be quick and efficient. This process captures data for authentication.

speed and user interface can cause a security concern because this also impacts the users acceptance rate of biometrics. If they are not comfortable with the interface and speed they might sabotage the devices or otherwise attempt to circumvent them.

References:

OIG Access Control (Biometrics) (pgs 165-167)

From: TIPTON, Harold F. & KRAUSE, MICKI, Information Security Management Handbook, 4th Edition, Volume 1, Pages 5-6.

in process of correction

NEW QUESTION 158

- (Topic 1)

Because all the secret keys are held and authentication is performed on the Kerberos TGS and the authentication servers, these servers are vulnerable to:

- A. neither physical attacks nor attacks from malicious code.
- B. physical attacks only
- C. both physical attacks and attacks from malicious code.
- D. physical attacks but not attacks from malicious code.

Answer: C

Explanation:

Since all the secret keys are held and authentication is performed on the Kerberos TGS and the authentication servers, these servers are vulnerable to both physical attacks and attacks from malicious code.

Because a client's password is used in the initiation of the Kerberos request for the service protocol, password guessing can be used to impersonate a client.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 42.

NEW QUESTION 161

- (Topic 1)

What security model implies a central authority that define rules and sometimes global rules, dictating what subjects can have access to what objects?

- A. Flow Model
- B. Discretionary access control
- C. Mandatory access control

D. Non-discretionary access control

Answer: D

Explanation:

As a security administrator you might configure user profiles so that users cannot change the system's time, alter system configuration files, access a command prompt, or install unapproved applications. This type of access control is referred to as nondiscretionary, meaning that access decisions are not made at the discretion of the user. Nondiscretionary access controls are put into place by an authoritative entity (usually a security administrator) with the goal of protecting the organization's most critical assets.

Non-discretionary access control is when a central authority determines what subjects can have access to what objects based on the organizational security policy. Centralized access control is not an existing security model.

Both, Rule Based Access Control (RuBAC or RBAC) and Role Based Access Controls (RBAC) falls into this category.

Reference(s) used for this question:

Harris, Shon (2012-10-18). CISSP All-in-One Exam Guide, 6th Edition (p. 221). McGraw- Hill. Kindle Edition.

and

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 2: Access control systems (page 33).

NEW QUESTION 162

- (Topic 1)

Kerberos is vulnerable to replay in which of the following circumstances?

- A. When a private key is compromised within an allotted time window.
- B. When a public key is compromised within an allotted time window.
- C. When a ticket is compromised within an allotted time window.
- D. When the KSD is compromised within an allotted time window.

Answer: C

Explanation:

Replay can be accomplished on Kerberos if the compromised tickets are used within an allotted time window.

The security depends on careful implementation:enforcing limited lifetimes for authentication credentials minimizes the threat of of replayed credentials, the KDC must be physically secured, and it should be hardened, not permitting any non-kerberos activities.

Reference:

Official ISC2 Guide to the CISSP, 2007 Edition, page 184 also see:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 42.

NEW QUESTION 164

- (Topic 1)

Sensitivity labels are an example of what application control type?

- A. Preventive security controls
- B. Detective security controls
- C. Compensating administrative controls
- D. Preventive accuracy controls

Answer: A

Explanation:

Sensitivity labels are a preventive security application controls, such as are firewalls, reference monitors, traffic padding, encryption, data classification, one-time passwords, contingency planning, separation of development, application and test environments.

The incorrect answers are:

Detective security controls - Intrusion detection systems (IDS), monitoring activities, and audit trails.

Compensating administrative controls - There no such application control. Preventive accuracy controls - data checks, forms, custom screens, validity checks, contingency planning, and backups. Sources:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 7: Applications and Systems Development (page 264).

KRUTZ, Ronald & VINES, Russel, The CISSP Prep Guide: Gold Edition, Wiley Publishing Inc., 2003, Chapter 7: Application Controls, Figure 7.1 (page 360).

NEW QUESTION 168

- (Topic 1)

In the context of access control, locks, gates, guards are examples of which of the following?

- A. Administrative controls
- B. Technical controls
- C. Physical controls
- D. Logical controls

Answer: C

Explanation:

Administrative, technical and physical controls are categories of access control mechanisms.

Logical and Technical controls are synonymous. So both of them could be eliminated as possible choices.

Physical Controls: These are controls to protect the organization's people and physical environment, such as locks, gates, and guards. Physical controls may be called "operational controls" in some contexts.

Physical security covers a broad spectrum of controls to protect the physical assets (primarily the people) in an organization. Physical Controls are sometimes referred to as "operational" controls in some risk management frameworks. These controls range from doors, locks, and windows to environment controls, construction standards, and guards. Typically, physical security is based on the notion of establishing security zones or concentric areas within a facility that require increased security as you get closer to the

valuable assets inside the facility. Security zones are the physical representation of the defense-in-depth principle discussed earlier in this chapter. Typically, security zones are associated with rooms, offices, floors, or smaller elements, such as a cabinet or storage locker. The design of the physical security controls within the facility must take into account the protection of the asset as well as the individuals working in that area.

Reference(s) used for this question:

Hernandez CISSP, Steven (2012-12-21). Official (ISC)2 Guide to the CISSP CBK, Third Edition ((ISC)2 Press) (Kindle Locations 1301-1303). Auerbach Publications. Kindle Edition.

and

Hernandez CISSP, Steven (2012-12-21). Official (ISC)2 Guide to the CISSP CBK, Third Edition ((ISC)2 Press) (Kindle Locations 1312-1318). Auerbach Publications. Kindle Edition.

NEW QUESTION 170

- (Topic 1)

Which of the following protection devices is used for spot protection within a few inches of the object, rather than for overall room security monitoring?

- A. Wave pattern motion detectors
- B. Capacitance detectors
- C. Field-powered devices
- D. Audio detectors

Answer: B

Explanation:

Capacitance detectors monitor an electrical field surrounding the object being monitored. They are used for spot protection within a few inches of the object, rather than for overall room security monitoring used by wave detectors. Penetration of this field changes the electrical capacitance of the field enough to generate and alarm. Wave pattern motion detectors generate a frequency wave pattern and send an alarm if the pattern is disturbed as it is reflected back to its receiver. Field-powered devices are a type of personnel access control devices. Audio detectors simply monitor a room for any abnormal sound wave generation and trigger an alarm.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 10: Physical security (page 344).

NEW QUESTION 172

- (Topic 1)

Access Control techniques do not include which of the following?

- A. Rule-Based Access Controls
- B. Role-Based Access Control
- C. Mandatory Access Control
- D. Random Number Based Access Control

Answer: D

Explanation:

Access Control Techniques Discretionary Access Control

Mandatory Access Control Lattice Based Access Control Rule-Based Access Control Role-Based Access Control

Source: DUPUIS, Clement, Access Control Systems and Methodology, Version 1, May 2002, CISSP Open Study Group Study Guide for Domain 1, Page 13.

NEW QUESTION 177

- (Topic 1)

Which of the following biometric devices offers the LOWEST CER?

- A. Keystroke dynamics
- B. Voice verification
- C. Iris scan
- D. Fingerprint

Answer: C

Explanation:

From most effective (lowest CER) to least effective (highest CER) are: Iris scan, fingerprint, voice verification, keystroke dynamics.

Reference : Shon Harris Aio v3 , Chapter-4 : Access Control , Page : 131

Also see: http://www.sans.org/reading_room/whitepapers/authentication/biometric-selection-body-parts-online_139

NEW QUESTION 178

- (Topic 1)

A confidential number used as an authentication factor to verify a user's identity is called a:

- A. PIN
- B. User ID
- C. Password
- D. Challenge

Answer: A

Explanation:

PIN Stands for Personal Identification Number, as the name states it is a combination of numbers.

The following answers are incorrect:

User ID This is incorrect because a Userid is not required to be a number and a Userid is only used to establish identity not verify it.

Password. This is incorrect because a password is not required to be a number, it could be any combination of characters.

Challenge. This is incorrect because a challenge is not defined as a number, it could be anything.

NEW QUESTION 179

- (Topic 1)

In non-discretionary access control using Role Based Access Control (RBAC), a central authority determines what subjects can have access to certain objects based on the organizational security policy. The access controls may be based on:

- A. The societies role in the organization
- B. The individual's role in the organization
- C. The group-dynamics as they relate to the individual's role in the organization
- D. The group-dynamics as they relate to the master-slave role in the organization

Answer: B

Explanation:

In Non-Discretionary Access Control, when Role Based Access Control is being used, a central authority determines what subjects can have access to certain objects based on the organizational security policy. The access controls may be based on the individual's role in the organization.

Reference(S) used for this question:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 33.

NEW QUESTION 184

- (Topic 1)

Which of the following is the LEAST user accepted biometric device?

- A. Fingerprint
- B. Iris scan
- C. Retina scan
- D. Voice verification

Answer: C

Explanation:

The biometric device that is least user accepted is the retina scan, where a system scans the blood-vessel pattern on the backside of the eyeball. When using this device, an individual has to place their eye up to a device, and may require a puff of air to be blown into the eye. The iris scan only needs for an individual to glance at a camera that could be placed above a door.

Source: HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw- Hill/Osborne, 2002, Chapter 4: Access Control (page 131).

NEW QUESTION 188

- (Topic 1)

Controls provide accountability for individuals who are accessing sensitive information. This accountability is accomplished:

- A. through access control mechanisms that require identification and authentication and through the audit function.
- B. through logical or technical controls involving the restriction of access to systems and the protection of information.
- C. through logical or technical controls but not involving the restriction of access to systems and the protection of information.
- D. through access control mechanisms that do not require identification and authentication and do not operate through the audit function.

Answer: A

Explanation:

Controls provide accountability for individuals who are accessing sensitive information. This accountability is accomplished through access control mechanisms that require identification and authentication and through the audit function. These controls must be in accordance with and accurately represent the organization's security policy. Assurance procedures ensure that the control mechanisms correctly implement the security policy for the entire life cycle of an information system.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 33.

NEW QUESTION 193

- (Topic 1)

Which of the following access control models introduces user security clearance and data classification?

- A. Role-based access control
- B. Discretionary access control
- C. Non-discretionary access control
- D. Mandatory access control

Answer: D

Explanation:

The mandatory access control model is based on a security label system. Users are given a security clearance and data is classified. The classification is stored in the security labels of the resources. Classification labels specify the level of trust a user must have to access a certain file.

Source: HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw- Hill/Osborne, 2002, Chapter 4: Access Control (Page 154).

NEW QUESTION 195

- (Topic 1)

Which of the following is NOT an advantage that TACACS+ has over TACACS?

- A. Event logging
- B. Use of two-factor password authentication
- C. User has the ability to change his password
- D. Ability for security tokens to be resynchronized

Answer:

A

Explanation:

Although TACACS+ provides better audit trails, event logging is a service that is provided with TACACS.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 3: Telecommunications and Network Security (page 121).

NEW QUESTION 197

- (Topic 1)

Which of the following models does NOT include data integrity or conflict of interest?

- A. Biba
- B. Clark-Wilson
- C. Bell-LaPadula
- D. Brewer-Nash

Answer: C

Explanation:

Bell LaPadula model (Bell 1975): The granularity of objects and subjects is not predefined, but the model prescribes simple access rights. Based on simple access restrictions the Bell LaPadula model enforces a discretionary access control policy enhanced with mandatory rules. Applications with rigid confidentiality requirements and without strong integrity requirements may properly be modeled.

These simple rights combined with the mandatory rules of the policy considerably restrict the spectrum of applications which can be appropriately modeled.

Source: TIPTON, Hal, (ISC)2, Introduction to the CISSP Exam presentation.

Also check:

Proceedings of the IFIP TC11 12th International Conference on Information Security, Samos (Greece), May 1996, On Security Models.

NEW QUESTION 201

- (Topic 1)

Like the Kerberos protocol, SESAME is also subject to which of the following?

- A. timeslot replay
- B. password guessing
- C. symmetric key guessing
- D. asymmetric key guessing

Answer: B

Explanation:

Sesame is an authentication and access control protocol, that also supports communication confidentiality and integrity. It provides public key based authentication along with the Kerberos style authentication, that uses symmetric key cryptography. Sesame supports the Kerberos protocol and adds some security extensions like public key based authentication and an ECMA-style Privilege Attribute Service.

The users under SESAME can authenticate using either symmetric encryption as in Kerberos or Public Key authentication. When using Symmetric Key authentication as in Kerberos, SESAME is also vulnerable to password guessing just like Kerberos would be.

The Symmetric key being used is based on the password used by the user when he logged on the system. If the user has a simple password it could be guessed or compromise. Even thou Kerberos or SESAME may be use, there is still a need to have strong password discipline.

The Basic Mechanism in Sesame for strong authentication is as follow:

The user sends a request for authentication to the Authentication Server as in Kerberos, except that SESAME is making use of public key cryptography for authentication where the client will present his digital certificate and the request will be signed using a digital signature. The signature is communicated to the authentication server through the preauthentication fields. Upon receipt of this request, the authentication server will verifies the certificate, then validate the signature, and if all is fine the AS will issue a ticket granting ticket (TGT) as in Kerberos. This TGT will be use to communicate with the privilege attribute server (PAS) when access to a resource is needed.

Users may authenticate using either a public key pair or a conventional (symmetric) key. If public key cryptography is used, public key data is transported in preauthentication data fields to help establish identity.

Kerberos uses tickets for authenticating subjects to objects and SESAME uses Privileged Attribute Certificates (PAC), which contain the subject's identity, access capabilities for the object, access time period, and lifetime of the PAC. The PAC is digitally signed so that the object can validate that it came from the trusted authentication server, which is referred to as the privilege attribute server (PAS). The PAS holds a similar role as the KDC within Kerberos. After a user successfully authenticates to the authentication service (AS), he is presented with a token to give to the PAS. The PAS then creates a PAC for the user to present to the resource he is trying to access.

Reference(s) used for this question: <http://srg.cs.uiuc.edu/Security/nephilim/Internal/SESAME.txt>

and

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 43.

NEW QUESTION 204

- (Topic 1)

Which type of attack involves impersonating a user or a system?

- A. Smurfing attack
- B. Spoofing attack
- C. Spamming attack
- D. Sniffing attack

Answer: B

Explanation:

A spoofing attack is when an attempt is made to gain access to a computer system by posing as an authorized user or system. Spamming refers to sending out or posting junk advertising and unsolicited mail. A smurf attack is a type of denial-of-service attack using PING and a spoofed address. Sniffing refers to observing packets passing on a network.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the

Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 3: Telecommunications and Network Security (page 77).

NEW QUESTION 205

- (Topic 1)

Which one of the following factors is NOT one on which Authentication is based?

- A. Type 1. Something you know, such as a PIN or password
- B. Type 2. Something you have, such as an ATM card or smart card
- C. Type 3. Something you are (based upon one or more intrinsic physical or behavioral traits), such as a fingerprint or retina scan
- D. Type 4. Something you are, such as a system administrator or security administrator

Answer: D

Explanation:

Authentication is based on the following three factor types:

Type 1. Something you know, such as a PIN or password

Type 2. Something you have, such as an ATM card or smart card

Type 3. Something you are (Unique physical characteristic), such as a fingerprint or retina scan

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 36.

Also: HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw-Hill/Osborne, 2002, chapter 4: Access Control (pages 132-133).

NEW QUESTION 210

- (Topic 1)

The "vulnerability of a facility" to damage or attack may be assessed by all of the following except:

- A. Inspection
- B. History of losses
- C. Security controls
- D. security budget

Answer: D

Explanation:

Source: The CISSP Examination Textbook- Volume 2: Practice by S. Rao Vallabhaneni.

NEW QUESTION 214

- (Topic 1)

Which of the following statements pertaining to using Kerberos without any extension is false?

- A. A client can be impersonated by password-guessing.
- B. Kerberos is mostly a third-party authentication protocol.
- C. Kerberos uses public key cryptography.
- D. Kerberos provides robust authentication.

Answer: C

Explanation:

Kerberos is a trusted, credential-based, third-party authentication protocol that uses symmetric (secret) key cryptography to provide robust authentication to clients accessing services on a network.

Because a client's password is used in the initiation of the Kerberos request for the service protocol, password guessing can be used to impersonate a client.

Here is a nice overview of HOW Kerberos is implement as described in RFC 4556:

* 1. Introduction

The Kerberos V5 protocol [RFC4120] involves use of a trusted third party known as the Key Distribution Center (KDC) to negotiate shared session keys between clients and services and provide mutual authentication between them.

The corner-stones of Kerberos V5 are the Ticket and the Authenticator. A Ticket encapsulates a symmetric key (the ticket session key) in an envelope (a public message) intended for a specific service. The contents of the Ticket are encrypted with a symmetric key shared between the service principal and the issuing KDC. The encrypted part of the Ticket contains the client principal name, among other items. An Authenticator is a record that can be shown to have been recently generated using the ticket session key in the associated Ticket. The ticket session key is known by the client who requested the ticket. The contents of the Authenticator are encrypted with the associated ticket session key. The encrypted part of an Authenticator contains a timestamp and the client principal name, among other items.

As shown in Figure 1, below, the Kerberos V5 protocol consists of the following message exchanges between the client and the KDC, and the client and the application service:

The Authentication Service (AS) Exchange

The client obtains an "initial" ticket from the Kerberos authentication server (AS), typically a Ticket Granting Ticket (TGT). The AS-REQ message and the AS-REP message are the request and the reply message, respectively, between the client and the AS.

The Ticket Granting Service (TGS) Exchange

The client subsequently uses the TGT to authenticate and request a service ticket for a particular service, from the Kerberos ticket-granting server (TGS). The TGS-REQ message and the TGS-REP message are the request and the reply message respectively between the client and the TGS.

The Client/Server Authentication Protocol (AP) Exchange

The client then makes a request with an AP-REQ message, consisting of a service ticket and an authenticator that certifies the client's possession of the ticket session key. The server may optionally reply with an AP-REP message. AP exchanges typically negotiate session-specific symmetric keys.

Usually, the AS and TGS are integrated in a single device also known as the KDC.

```
+-----+
+----->| KDC |
AS-REQ / +-----| |
// +-----+
// ^ |
/ |AS-REP / |
| | / TGS-REQ + TGS-REP
```

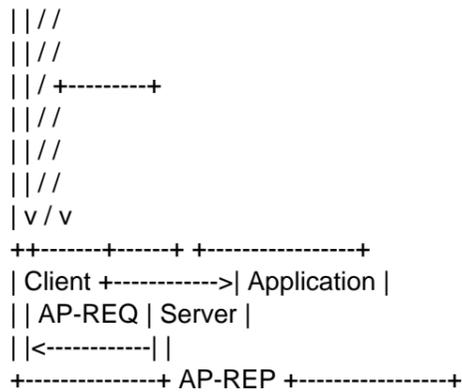


Figure 1: The Message Exchanges in the Kerberos V5 Protocol

In the AS exchange, the KDC reply contains the ticket session key, among other items, that is encrypted using a key (the AS reply key) shared between the client and the KDC. The AS reply key is typically derived from the client's password for human users. Therefore, for human users, the attack resistance strength of the Kerberos protocol is no stronger than the strength of their passwords.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, John Wiley & Sons, 2001, Chapter 2: Access control systems (page 40).

And
HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw-Hill/Osborne, 2002, chapter 4: Access Control (pages 147-151).
and <http://www.ietf.org/rfc/rfc4556.txt>

NEW QUESTION 215

- (Topic 1)

What is considered the most important type of error to avoid for a biometric access control system?

- A. Type I Error
- B. Type II Error
- C. Combined Error Rate
- D. Crossover Error Rate

Answer: B

Explanation:

When a biometric system is used for access control, the most important error is the false accept or false acceptance rate, or Type II error, where the system would accept an impostor.

A Type I error is known as the false reject or false rejection rate and is not as important in the security context as a type II error rate. A type one is when a valid company employee is rejected by the system and he cannot get access even thou it is a valid user.

The Crossover Error Rate (CER) is the point at which the false rejection rate equals the false acceptance rate if your would create a graph of Type I and Type II errors. The lower the CER the better the device would be.

The Combined Error Rate is a distracter and does not exist.

Source: TIPTON, Harold F. & KRAUSE, Micki, Information Security Management Handbook, 4th edition (volume 1), 2000, CRC Press, Chapter 1, Biometric Identification (page 10).

NEW QUESTION 219

- (Topic 1)

Which of the following best ensures accountability of users for the actions taken within a system or domain?

- A. Identification
- B. Authentication
- C. Authorization
- D. Credentials

Answer: B

Explanation:

Details:
The only way to ensure accountability is if the subject is uniquely identified and authenticated. Identification alone does not provide proof the user is who they claim to be. After showing proper credentials, a user is authorized access to resources.

References:
HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw-Hill/Osborne, 2002, Chapter 4: Access Control (page 126).

NEW QUESTION 224

- (Topic 1)

In Synchronous dynamic password tokens:

- A. The token generates a new password value at fixed time intervals (this password could be based on the time of day encrypted with a secret key).
- B. The token generates a new non-unique password value at fixed time intervals (this password could be based on the time of day encrypted with a secret key).
- C. The unique password is not entered into a system or workstation along with an owner's PIN.
- D. The authentication entity in a system or workstation knows an owner's secret key and PIN, and the entity verifies that the entered password is invalid and that it was entered during the invalid time window.

Answer: A

Explanation:

Synchronous dynamic password tokens:
- The token generates a new password value at fixed time intervals (this password could be the time of day encrypted with a secret key).
- the unique password is entered into a system or workstation along with an owner's PIN.
- The authentication entity in a system or workstation knows an owner's secret key and PIN, and the entity verifies that the entered password is valid and that it was entered during the valid time window.

Source: KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 37.

NEW QUESTION 227

- (Topic 1)

Which of the following would be an example of the best password?

- A. golf001
- B. Elizabeth
- C. T1me4g0IF
- D. password

Answer: C

Explanation:

The best passwords are those that are both easy to remember and hard to crack using a dictionary attack. The best way to create passwords that fulfil both criteria is to use two small unrelated words or phonemes, ideally with upper and lower case characters, a special character, and/or a number. Shouldn't be used: common names, DOB, spouse, phone numbers, words found in dictionaries or system defaults.

Source: ROTHKE, Ben, CISSP CBK Review presentation on domain 1.

NEW QUESTION 231

- (Topic 1)

Why do buffer overflows happen? What is the main cause?

- A. Because buffers can only hold so much data
- B. Because of improper parameter checking within the application
- C. Because they are an easy weakness to exploit
- D. Because of insufficient system memory

Answer: B

Explanation:

Buffer Overflow attack takes advantage of improper parameter checking within the application. This is the classic form of buffer overflow and occurs because the programmer accepts whatever input the user supplies without checking to make sure that the length of the input is less than the size of the buffer in the program. The buffer overflow problem is one of the oldest and most common problems in software development and programming, dating back to the introduction of interactive computing. It can result when a program fills up the assigned buffer of memory with more data than its buffer can hold. When the program begins to write beyond the end of the buffer, the program's execution path can be changed, or data can be written into areas used by the operating system itself. This can lead to the insertion of malicious code that can be used to gain administrative privileges on the program or system.

As explained by Gaurab, it can become very complex. At the time of input even if you are checking the length of the input, it has to be check against the buffer size. Consider a case where entry point of data is stored in Buffer1 of Application1 and then you copy it to Buffer2 within Application2 later on, if you are just checking the length of data against Buffer1, it will

not ensure that it will not cause a buffer overflow in Buffer2 of Application2.

A bit of reassurance from the ISC2 book about level of Coding Knowledge needed for the exam:

It should be noted that the CISSP is not required to be an expert programmer or know the inner workings of developing application software code, like the FORTRAN programming language, or how to develop Web applet code using Java. It is not even necessary that the CISSP know detailed security-specific coding practices such as the major divisions of buffer overflow exploits or the reason for preferring `str(n)cpy` to `strcpy` in the C language (although all such knowledge is, of course, helpful). Because the CISSP may be the person responsible for ensuring that security is included in such developments, the CISSP should know the basic procedures and concepts involved during the design and development of software programming. That is, in order for the CISSP to monitor the software development process and verify that security is included, the CISSP must understand the fundamental concepts of programming developments and the security strengths and weaknesses of various application development processes.

The following are incorrect answers:

"Because buffers can only hold so much data" is incorrect. This is certainly true but is not the best answer because the finite size of the buffer is not the problem -- the problem is that the programmer did not check the size of the input before moving it into the buffer.

"Because they are an easy weakness to exploit" is incorrect. This answer is sometimes true but is not the best answer because the root cause of the buffer overflow is that the programmer did not check the size of the user input.

"Because of insufficient system memory" is incorrect. This is irrelevant to the occurrence of a buffer overflow.

Reference(s) used for this question:

Hernandez CISSP, Steven (2012-12-21). Official (ISC)2 Guide to the CISSP CBK, Third Edition ((ISC)2 Press) (Kindle Locations 13319-13323). Auerbach Publications. Kindle Edition.

NEW QUESTION 232

- (Topic 1)

Another type of access control is lattice-based access control. In this type of control a lattice model is applied. How is this type of access control concept applied?

- A. The pair of elements is the subject and object, and the subject has an upper bound equal or higher than the upper bound of the object being accessed.
- B. The pair of elements is the subject and object, and the subject has an upper bound lower then the upper bound of the object being accessed.
- C. The pair of elements is the subject and object, and the subject has no special upper or lower bound needed within the lattice.
- D. The pair of elements is the subject and object, and the subject has no access rights in relation to an object.

Answer: A

Explanation:

To apply this concept to access control, the pair of elements is the subject and object, and the subject has to have an upper bound equal or higher than the object being accessed.

WIKIPEDIA has a great explanation as well:

In computer security, lattice-based access control (LBAC) is a complex access control based on the interaction between any combination of objects (such as resources, computers, and applications) and subjects (such as individuals, groups or organizations). In this type of label-based mandatory access control model, a lattice is used to define the levels of security that an object may have and that a subject may have access to. The subject is only allowed to access an object if the security level of the subject is greater than or equal to that of the object.

Reference(s) used for this question:

KRUTZ, Ronald L. & VINES, Russel D., The CISSP Prep Guide: Mastering the Ten Domains of Computer Security, 2001, John Wiley & Sons, Page 34.
and
http://en.wikipedia.org/wiki/Lattice-based_access_control

NEW QUESTION 233

- (Topic 1)

Which of the following does not apply to system-generated passwords?

- A. Passwords are harder to remember for users.
- B. If the password-generating algorithm gets to be known, the entire system is in jeopardy.
- C. Passwords are more vulnerable to brute force and dictionary attacks.
- D. Passwords are harder to guess for attackers.

Answer: C

Explanation:

Users tend to choose easier to remember passwords. System-generated passwords can provide stronger, harder to guess passwords. Since they are based on rules provided by the administrator, they can include combinations of uppercase/lowercase letters, numbers and special characters, making them less vulnerable to brute force and dictionary attacks. One danger is that they are also harder to remember for users, who will tend to write them down, making them more vulnerable to anyone having access to the user's desk. Another danger with system-generated passwords is that if the password-generating algorithm gets to be known, the entire system is in jeopardy.

Source: RUSSEL, Deborah & GANGEMI, G.T. Sr., Computer Security Basics, O'Reilly, July 1992 (page 64).

NEW QUESTION 238

- (Topic 1)

What is the Biba security model concerned with?

- A. Confidentiality
- B. Reliability
- C. Availability
- D. Integrity

Answer: D

Explanation:

The Biba security model addresses the integrity of data being threatened when subjects at lower security levels are able to write to objects at higher security levels and when subjects can read data at lower levels.

Source: HARRIS, Shon, All-In-One CISSP Certification Exam Guide, McGraw-Hill/Osborne, 2002, Chapter 5: Security Models and Architecture (Page 244).

NEW QUESTION 239

- (Topic 1)

There are parallels between the trust models in Kerberos and Public Key Infrastructure (PKI). When we compare them side by side, Kerberos tickets correspond most closely to which of the following?

- A. public keys
- B. private keys
- C. public-key certificates
- D. private-key certificates

Answer: C

Explanation:

A Kerberos ticket is issued by a trusted third party. It is an encrypted data structure that includes the service encryption key. In that sense it is similar to a public-key certificate. However, the ticket is not the key.

The following answers are incorrect:

public keys. Kerberos tickets are not shared out publicly, so they are not like a PKI public key.

private keys. Although a Kerberos ticket is not shared publicly, it is not a private key. Private keys are associated with Asymmetric crypto system which is not used by Kerberos. Kerberos uses only the Symmetric crypto system.

private key certificates. This is a detractor. There is no such thing as a private key certificate.

NEW QUESTION 244

- (Topic 1)

Which of the following statements pertaining to the Bell-LaPadula is TRUE if you are NOT making use of the strong star property?

- A. It allows "read up."
- B. It addresses covert channels.
- C. It addresses management of access controls.
- D. It allows "write up."

Answer: D

Explanation:

Bell-LaPadula Confidentiality Model¹⁰ The Bell-LaPadula model is perhaps the most well-known and significant security model, in addition to being one of the oldest models used in the creation of modern secure computing systems. Like the Trusted Computer System Evaluation Criteria (or TCSEC), it was inspired by early U.S. Department of Defense security policies and the need to prove that confidentiality could be maintained. In other words, its primary goal is to prevent disclosure as the model system moves from one state (one point in time) to another.

When the strong star property is not being used it means that both the property and the

Simple Security Property rules would be applied.

The Star (*) property rule of the Bell-LaPadula model says that subjects cannot write down, this would compromise the confidentiality of the information if someone

at the secret layer would write the object down to a confidential container for example.

The Simple Security Property rule states that the subject cannot read up which means that a subject at the secret layer would not be able to access objects at Top Secret for example.

You must remember: The model tells you about are NOT allowed to do. Anything else would be allowed. For example within the Bell LaPadula model you would be allowed to write up as it does not compromise the security of the information. In fact it would upgrade it to the point that you could lock yourself out of your own information if you have only a secret security clearance.

The following are incorrect answers because they are all FALSE:

"It allows read up" is incorrect. The "simple security" property forbids read up.

"It addresses covert channels" is incorrect. Covert channels are not addressed by the Bell- LaPadula model.

"It addresses management of access controls" is incorrect. Management of access controls are beyond the scope of the Bell-LaPadula model.

Reference(s) used for this question:

Hernandez CISSP, Steven (2012-12-21). Official (ISC)2 Guide to the CISSP CBK, Third Edition ((ISC)2 Press) (Kindle Locations 17595-17600). Auerbach Publications. Kindle Edition.

NEW QUESTION 248

- (Topic 1)

Which access control model is also called Non Discretionary Access Control (NDAC)?

- A. Lattice based access control
- B. Mandatory access control
- C. Role-based access control
- D. Label-based access control

Answer: C

Explanation:

RBAC is sometimes also called non-discretionary access control (NDAC) (as Ferraiolo says "to distinguish it from the policy-based specifics of MAC"). Another model that fits within the NDAC category is Rule-Based Access Control (RuBAC or RBAC). Most of the CISSP books use the same acronym for both models but NIST tend to use a lowercase "u" in between R and B to differentiate the two models.

You can certainly mimic MAC using RBAC but true MAC makes use of Labels which contains the sensitivity of the objects and the categories they belong to. No labels means MAC is not being used.

One of the most fundamental data access control decisions an organization must make is the amount of control it will give system and data owners to specify the level of access users of that data will have. In every organization there is a balancing point between the access controls enforced by organization and system policy and the ability for information owners to determine who can have access based on specific business requirements. The process of translating that balance into a workable access control model can be defined by three general access frameworks:

Discretionary access control Mandatory access control Nondiscretionary access control

A role-based access control (RBAC) model bases the access control authorizations on the roles (or functions) that the user is assigned within an organization. The determination of what roles have access to a resource can be governed by the owner of the data, as with DACs, or applied based on policy, as with MACs.

Access control decisions are based on job function, previously defined and governed by policy, and each role (job function) will have its own access capabilities. Objects associated with a role will inherit privileges assigned to that role. This is also true for groups of users, allowing administrators to simplify access control strategies by assigning users to groups and groups to roles.

There are several approaches to RBAC. As with many system controls, there are variations on how they can be applied within a computer system.

There are four basic RBAC architectures:

* 1. Non-RBAC: Non-RBAC is simply a user-granted access to data or an application by traditional mapping, such as with ACLs. There are no formal "roles" associated with the mappings, other than any identified by the particular user.

* 2. Limited RBAC: Limited RBAC is achieved when users are mapped to roles within a single application rather than through an organization-wide role structure. Users in a limited RBAC system are also able to access non-RBAC-based applications or data. For example, a user may be assigned to multiple roles within several applications and, in addition, have direct access to another application or system independent of his or her assigned role. The key attribute of limited RBAC is that the role for that user is defined within an application and not necessarily based on the user's organizational job function.

* 3. Hybrid RBAC: Hybrid RBAC introduces the use of a role that is applied to multiple applications or systems based on a user's specific role within the organization. That role is then applied to applications or systems that subscribe to the organization's role-based model. However, as the term "hybrid" suggests, there are instances where the subject may also be assigned to roles defined solely within specific applications, complimenting (or, perhaps, contradicting) the larger, more encompassing organizational role used by other systems.

* 4. Full RBAC: Full RBAC systems are controlled by roles defined by the organization's policy and access control infrastructure and then applied to applications and systems across the enterprise. The applications, systems, and associated data apply permissions based on that enterprise definition, and not one defined by a specific application or system. Be careful not to try to make MAC and DAC opposites of each other -- they are two different access control strategies with RBAC being a third strategy that was defined later to address some of the limitations of MAC and DAC.

The other answers are not correct because:

Mandatory access control is incorrect because though it is by definition not discretionary, it is not called "non-discretionary access control." MAC makes use of label to indicate the sensitivity of the object and it also makes use of categories to implement the need to know.

Label-based access control is incorrect because this is not a name for a type of access control but simply a bogus detractor.

Lattice based access control is not adequate either. A lattice is a series of levels and a subject will be granted an upper and lower bound within the series of levels. These levels could be sensitivity levels or they could be confidentiality levels or they could be integrity levels.

Reference(s) used for this question: All in One, third edition, page 165.

Ferraiolo, D., Kuhn, D. & Chandramouli, R. (2003). Role-Based Access Control, p. 18.

Ferraiolo, D., Kuhn, D. (1992). Role-Based Access Controls. http://csrc.nist.gov/rbac/Role_Based_Access_Control-1992.html

Schneider, Andrew (2013-04-15). Official (ISC)2 Guide to the CISSP CBK, Third Edition : Access Control ((ISC)2 Press) (Kindle Locations 1557-1584). Auerbach Publications. Kindle Edition.

Schneider, Andrew (2013-04-15). Official (ISC)2 Guide to the CISSP CBK, Third Edition : Access Control ((ISC)2 Press) (Kindle Locations 1474-1477). Auerbach Publications. Kindle Edition.

NEW QUESTION 253

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