

SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203.

DEPARTMENT OF INFORMATION TECHNOLOGY

QUESTION BANK



VIII SEMESTER

1908801 – INFORMATION SECURITY

Regulation – 2019

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(Even Semester)**

Prepared by

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DEPARTMENT OF INFORMATION TECHNOLOGY

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Year &Semester : IV /VIII
Subject : 1908801-INFORMATION SECURITY
Degree &Branch : B. Tech - I.T

UNIT I -INTRODUCTION			
History, What is Information Security?, Critical Characteristics of Information, NSTISSC Security Model, Components of an Information System, Securing the Components, Balancing Security and Access, The SDLC, The Security SDLC			
PART A			
Q.No	Questions	BT Level	Competence
1.	How shall you interpret Information Security?	BTL 2	Understand
2.	Name the multiple layers of security that a successful organization should have in its place to protect its operations..	BTL 1	Remember
3.	Define Information Security.	BTL 1	Remember
4.	List the characteristics of CIA triangle.	BTL 1	Remember
5.	Give the critical characteristics of Information.	BTL 2	Understand
6.	Discuss the bottom-up approach and top-down approach.	BTL 2	Understand
7.	Differentiate direct and indirect attacks.	BTL 2	Understand
8.	Give a short note on E-mail spoofing.	BTL 2	Understand
9.	What are the measures required to protect the confidentiality of information?	BTL 1	Remember
10.	Show with the help of a diagram about the components of information Security.	BTL 1	Remember
11.	How shall you design the computer as the subject and object of the attack?	BTL 2	Understand

12.	Give the importance of a C.I.A triangle	BTL 2	Understand
13.	Give a neat diagram for Information Security Implementation.	BTL 2	Understand
14.	State the responsibilities of Data Owners, Data custodians and Data users.	BTL 1	Remember
15.	Examine if the C.I.A. triangle is incomplete, why is it so commonly used in security?	BTL 2	Understand
16.	Describe a Security Team in an organization. Should the approach to security be technical or managerial?	BTL 1	Remember
17.	What is the use of methodology in the implementation of Information Security?	BTL 1	Remember
18.	Compare Vulnerability and Exposure.	BTL 2	Understand
19.	Classify the three components of the C.I.A Triangle. What are they used for?	BTL 1	Remember
20.	Information Security is which of the following: An Art or Science or both? Justify your answer.	BTL 2	Understand
21.	What is SDLC?	BTL 1	Remember
22.	Write SDLC Investigation/Analysis Phases.	BTL 2	Understand
23.	List out the Members of the security project team.	BTL 1	Remember
24.	Mention the steps in logical design.	BTL 1	Remember

PART B

1.	Evaluate the various components of Information Security that a successful organization must have.	(13)	BTL 5	Evaluate
2.	i)List the various components of an information system and tell about them. ii)List the history of Information Security.	(8) (5)	BTL 3	Apply
3.	i). What is NSTISSC Security Model? ii). Describe in detail about the top-down approach and the bottom-up approach with the help of a diagram.	(8) (5)	BTL 4	Analyze
4.	i). Identify the types of attacks in Information Security. ii). Examine E-mail spoofing and phishing.	(6) (7)	BTL 4	Analyze
5.	i).Discuss about the need for confidentiality in Information Security. ii).Explain the file hashing in the integrity of the information.	(7) (6)	BTL 3	Apply
6.	i) Examine the critical characteristics of information security. ii) Analyse in detail about the advantages and disadvantages of information security.	(7) (6)	BTL 4	Analyze
7.	Illustrate briefly about SDLC waterfall methodology and its relation in respect to information security.	(13)	BTL 3	Apply
8.	Describe the Security Systems Development Life Cycle.	(13)	BTL 4	Analyze

9.	i)Compose the roles of Information Security Project Team. ii)Design the steps unique to the security systems development life cycle in all the phases of SSDLC model.	(5) (8)	BTL 6	Create
10.	i)Illustrate the different types of instruction set architecture in detail. ii)Examine the basic instruction types with examples.	(7) (6)	BTL 3	Apply
11.	What are the six components of an information system? Which are most directly affected by the study of computer security?	(13)	BTL 4	Analyze
12	i). Infer about Information Security Project Team. ii) Analyze the methodology important in the implementation of information security? How does a methodology improve the process?	(8) (5)	BTL 4	Analyze
13	Analyze the critical characteristics of information. How are they used in the study of computer security?	(13)	BTL 4	Analyze
14	Discuss the steps common to both the systems development life cycle and the security systems life cycle.	(13)	BTL 4	Analyze
15	Explain the key information security concepts.	(13)	BTL 4	Analyze
16	Describe the critical characteristics of information.	(13)	BTL 4	Analyze
17	Compare SDLC and SecSDLC Phases.	(13)	BTL 4	Analyze

PART C

1	Assess the importance of infrastructure protection (assuring the security of utility services) and how that is related to enhancing information security.	(15)	BTL 5	Evaluate
2	Formulate any methodology, and why it is important in the implementation of information security. How does a methodology improve the process?	(15)	BTL 6	Create
3	Generalize which members of an organization are involved in the security system development life cycle. Who leads the process?	(15)	BTL 6	Create
4	Evaluate who decides how and when data in an organization will be used or controlled. Who is responsible for seeing that these wishes are carried out?	(15)	BTL 5	Evaluate
5	Create the design approaches to the information security implementation.	(15)	BTL 6	Create

UNIT II- SECURITY INVESTIGATION

Need for Security - Business Needs - Threats, Attacks – Legal - Ethical and Professional Issues -An Overview of Computer Security -Access Control Matrix - Policy-Security policies - Confidentiality policies - Integrity policies and Hybrid policies.

PART-A

Q.No	Questions	BT Level	Competence
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1	List the 4 important functions for an organization based on information security.	BTL 1	Remember
2	What are the assets in the organization that require protection.	BTL 2	Understand
3	Construct with the help of a table any 4 threats with its examples.	BTL 2	Understand
4	Examine the meaning of the sentence “data in motion and data at rest”.	BTL 1	Remember
5	What is meant by the term “Information Extortion”?	BTL 1	Remember
6	Give the definition of software piracy.	BTL 2	Understand
7	Illustrate the technical mechanisms that have been used to enforce copyright laws.	BTL 2	Understand
8	Differences between a Threat and an Attack.	BTL 2	Understand
9	What is the logic behind using a license agreement window and the use of an online registration process to combat piracy.	BTL 2	Understand
10	Discuss about malware.	BTL 1	Remember
11	Name the most common methods of virus transmission.	BTL 1	Remember
12	Formulate which management groups are responsible for implementing information security to protect the organization’s ability to function.	BTL 1	Remember
13	What are the measures that individuals can take to protect themselves from shoulder surfing.	BTL 1	Remember
14	Define the meaning of the term electronic Theft’.	BTL 1	Remember
15	Express about the password attacks.	BTL 2	Understand
16	State the various types of malware. How do worms differ from viruses? Do Trojan horses carry viruses or worms?	BTL 1	Remember
17	Interpret the following terms: Macro Virus and boot Virus.	BTL 2	Understand
18	List about commonplace security principles.	BTL 1	Remember
19	List any five attacks that is used against controlled systems.	BTL 1	Remember
20	Difference between a denial-of-service attack and a distributed denial-of-service attack? Which is more dangerous? Why?	BTL 2	Understand
21	Write some examples for security threads.	BTL 2	Understand
22	List out the category of threats.	BTL 1	Remember
23	Define trojan horses.	BTL 1	Remember
24	Define information extortion.	BTL 2	Understand

PART-B

1	i). Discuss about the threats. ii). Express about five criteria for a policy to become enforceable.	(6) (7)	BTL 3	Apply
2	Illustrate the methods does a social engineering hacker use to gain information about a user's login id and password. How would this method differ if it were targeted toward an administrator's assistant versus a data-entry clerk?	(13)	BTL 3	Apply
3	Describe the types of Laws and Ethics in Information Security.	(13)	BTL 4	Analyze
4	How will you develop management groups that are responsible for implementing information security to protect the organization's ability to function ?	(13)	BTL 3	Apply
5	i) State the types of password attacks. ii) Tell the three ways in which authorization can be handled.	(6) (7)	BTL 3	Apply
6	i) Expression detail about : (a) Protecting the functionality of an organization (b) Enabling the safe operations of Applications (c) Protecting data that organizations collect and use (d) Safeguarding Technology Assets in organizations ii) Discuss in detail about worms.	(2) (2) (2) (2) (5)	BTL 3	Apply
7	Analyze in detail about Ethics and Information Security.	(13)	BTL 4	Analyze
8	i) Examine in detail about Access control list. ii) Give an example of a Systems-specific policy.	(8) (5)	BTL 4	Analyze
9	i) List the Computer Security Hybrid Policies. ii) Describe the types of Computer Security.	(7) (6)	BTL 3	Apply
10	i) Quote the confidentiality policies. ii) Discuss in detail about the types of security policies.	(7) (6)	BTL 4	Analyze
11	i) Explain Integrity Policies. ii) Assess the Secure Software Development.	(6) (7)	BTL 4	Analyze
12	Analyze whether information security a management problem. What can management do that technology cannot?	(13)	BTL 4	Analyze
13	Point out why data is the most important asset an organization possesses. What other assets in the organization require protection?	(13)	BTL 4	Analyze
14	Illustrate which management groups are responsible for implementing information security to protect the organization's	(13)	BTL 3	Apply

	ability to function.			
15	Describe the following i) Human error or failure ii) Information extortion iii) Sabotage or Vandalism	(5) (4) (4)	BTL 4	Analyze
16	Explain the following i) Phising ii) Social engineering	(7) (6)	BTL 4	Analyze
17	Write about Software development security problems.	(13)	BTL 4	Analyze
PART-C				
1	How has the perception of the hacker changed over recent years? Compose the profile of a hacker today.	(15)	BTL 6	Create
2	Evaluate which management groups are responsible for implementing information security to protect the organization's ability to function.	(15)	BTL 5	Evaluate
3	Summarize does technological obsolescence constitute a threat to information security? How can an organization protect against it?	(15)	BTL 5	Evaluate
4	Generalize how the intellectual property owned by an organization usually have value. If so, how can attackers threaten that value?	(15)	BTL 6	Create
5	Explain the major attacks used against a controlled system.	(15)	BTL 5	Evaluate

UNIT III - SECURITY ANALYSIS

Risk Management - Identifying and Assessing Risk - Assessing and Controlling Risk Systems - Access Control Mechanisms - Information Flow and Confinement Problem.

PART-A			
Q.No	Questions	BT Level	Competence
1	Express the role of Risk Management in Information Security.	BTL 2	Understand
2	Define the four communities of interest responsible for addressing all levels of risk.	BTL 2	Understand
3	Define Risk Identification.	BTL 1	Remember

4	List the Risk Management categorization subdivisions.		BTL 1	Remember
5	Express the Data Asset Attributes.		BTL 2	Understand
6	Distinguish between an asset's ability to generate revenue and its ability to generate profit.		BTL 2	Understand
7	Name the types of Information classification.		BTL 1	Remember
8	What are the strategies for controlling risk.		BTL 2	Understand
9	State the vulnerabilities in Risk Management.		BTL 1	Remember
10	Design a table to list the threats and their related examples.		BTL 2	Understand
11	Classify the Quantitative and Qualitative Risk Control Practices.		BTL 4	Analyze
12	Show relevant examples of how Microsoft follows best practices for Risk Management.		BTL 1	Remember
13	Assess the metric-based measures used in benchmarking.		BTL 1	Remember
14	Tell the Ten Immutable Laws of Security offered by Microsoft.		BTL 1	Remember
15	Show the Risk Management.		BTL 2	Understand
16	Point out the significance of Residual Risk.		BTL 4	Analyze
17	Define Mitigate Strategy.		BTL 1	Remember
18	Show the three common methods used to defend control strategy.		BTL 1	Remember
19	Classify the information contained in the computer or personal digital assistant. Based on the potential for misuse, what information would be confidential, sensitive, and unclassified for public release?		BTL 1	Remember
20	Generalize the strategies for controlling risk.		BTL 2	Understand
21	Mention the traditional components in information security.		BTL 1	Remember
22	What is unclassified data?		BTL 1	Remember
23	Infer clean desk policy.		BTL 2	Understand
24	Define weighted factor analysis.		BTL 2	Understand

PART-B

1	Discuss in detail about Risk Management.	(13)	BTL 4	Analyze
2	Describe and draw the components of Risk Identification.	(13)	BTL 3	Apply

3	i) Define the Information Classification Scheme. ii) Describe the threats that represent danger to the organization's information.	(3) (10)	BTL 4	Analyze
4	Design and develop Risk Assessment using sample TVA spreadsheet.	(13)	BTL 3	Apply
5	i) Design Risk control strategies. ii) Examine Risk Handling Decision points.	(8) (5)	BTL 4	Analyze
6	i). Summarize Cost Benefit Analysis. ii). Distinguish the Defend control strategy and Transfer control strategy.	(9) (4)	BTL 3	Apply
7	i). Discuss in detail about Benchmarking. ii). Explain with an example about the best practices followed in an organization.	(7) (6)	BTL 4	Analyze
8	Assess the reasons to why the periodic review be a part of the process in risk management strategies.	(13)	BTL 4	Analyze
9	Examine to how Risk appetite varies from organization to organization.	(13)	BTL 3	Apply
10	i) Analyze which is more important to the system's components classification scheme. ii) Describe Incidence Reponse Plan.	(7) (6)	BTL 4	Analyze
11	Explain the Security Incident Handling in detail?	(13)	BTL 4	Analyze
12	i) Explain in detail about Information Flow. ii). Point out the Confinement Problem.	(7) (6)	BTL 4	Analyze
13	i) Define Access Control List. ii) Differentiate between various Feasibility Studies for the organization's strategic objectives.	(8) (5)	BTL 3	Apply
14	With a suitable diagram examine the Risk Management.	(13)	BTL 3	Apply
15	How threat assessment is executed in information security?	(13)	BTL 3	Apply
16	Explain about Microsoft's security policies.	(13)	BTL 4	Analyze
17	Write about ten immutable laws of security in detail>	(13)	BTL 4	Analyze
PART-C				
1	Formulate the points for Hardware, Software, and Network Asset Identification.	(15)	BTL6	Create
2	Explain in detail about the System Access control Mechanism.	(15)	BTL 5	Evaluate

3	Explain the risk control cycle with a flowchart.	(15)	BTL 5	Evaluate
4	Develop necessary points with any example for asset identification and valuation.	(15)	BTL 6	Creating
5	Describe the feasibility studies in information security	(15)	BTL 4	Analyze

UNIT IV- LOGICAL DESIGN

Blueprint for Security - Information Security Policy - Standards and Practices - ISO 17799/BS 7799 - NIST Models - VISA International Security Model - Design of Security Architecture -Planning for Continuity.

PART-A

Q.No	Questions	BT Level	Competence
1	Distinguish between Physical Design and Logical Design.	BTL 2	Understand
2	Express significant points in the Information Security Blueprint.	BTL 1	Remember
3	Give the five goals of Information Security Governance.	BTL 2	Understand
4	Point out the five criteria for a policy to be effective and thus legally enforceable.	BTL 1	Remember
5	What are the two areas in which Enterprise Security Policy typically addresses compliance?	BTL 1	Remember
6	Define Issue Specific Security Policy.	BTL 1	Remember
7	State the types of Policies.	BTL 1	Remember
8	Assess the drawbacks of ISO 17799/BS 7799.	BTL 1	Remember
9	Formulate the significant points in the scope of NIST SP 800-14.	BTL 2	Understand
10	Analyze the names of NIST documents that can assist in the design of a security framework.	BTL 4	Analyze
11	Generalize the security plans using NIST SP 800-18 that can be used as the foundation for a comprehensive security blueprint and framework.	BTL 2	Understand
12	State two important documents in a VISA International Security Model.	BTL 1	Remember
13	Assess the Defence in Depth Policy.	BTL 2	Understand
14	Quote the important types of controls in VISA International Security Model.	BTL 1	Remember
15	Point out the components of Contingency Planning.	BTL 1	Remember
16	Examine using the diagram for spheres of security.	BTL 1	Remember
17	Show the different stages in the Business Impact Analysis step.	BTL 2	Understand

18	Assess the commonly accepted Security Principles.		BTL 2	Understand
19	What is a security blue print?		BTL 2	Understand
20	Examine the five testing strategies of Incident Planning.		BTL 2	Understand
21	What is life cycle planning?		BTL 1	Remember
22	Infer policy management.		BTL 2	Understand
23	What is access control matrix?		BTL 1	Remember
24	Define the term de facto standards.		BTL 2	Understand
PART-B				
1	i) List the 3 types of security policies. ii) Identify the components of ISSP.	(8) (5)	BTL 4	Analyze
2	Elaborate briefly about Information Security Blueprint.	(13)	BTL 3	Apply
3	i) Give the details of the types of policies in Information Security. ii) Identify the inherent problems with ISO 17799.	(4) (9)	BTL 4	Analyze
4.	Express in detail about ISO 17799/BS 7799.	(13)	BTL 4	Analyze
5	Explain in detail about NIST security Models.	(13)	BTL 4	Analyze
6	i) Define information security governance. Who in the organization should plan for it? ii) Examine how can a security framework assist in the design and implementation of a security infrastructure?	(5) (8)	BTL 3	Apply
7	i) Demonstrate with a diagram about the guidelines, purposes used to achieve using ISO/IEC 17799. ii) Illustrate can a security administrator find information on established security frameworks?	(8) (5)	BTL 3	Apply
8	i) Evaluate the VISA International Security Model. ii) Summarize planning for Continuity.	(5) (8)	BTL 4	Analyze
9	Design Security Architecture and explain the goals used for achieving it.	(13)	BTL 4	Analyze
10	Analyze what Web resources can aid an organization in developing best practices as part of a security framework?	(13)	BTL 4	Analyze
11	Point out management, operational, and technical controls, and explain when each would be applied as part of a security framework.	(13)	BTL 4	Analyze
12	Describe contingency planning. How is it different from routine management planning? What are the components of contingency planning	(13)	BTL 3	Apply

13	Discuss briefly about policy, a standard, and a practices with any example.	(13)	BTL 4	Analyze
14	Illustrate briefly about Incident Response Methodology.	(13)	BTL 3	Apply
15	Write and explain the components of ISSP.	(13)	BTL 3	Apply
16	Explain about EISP with components.	(13)	BTL 4	Analyze
17	Describe about system-specific policy.	(13)	BTL 4	Analyze
PART C				
1	How shall you create a framework and blueprint for Information Security? Design diagrams and suitable examples.	(15)	BTL 6	Create
2	Explain Information Security Continuity for ISO 27001. Also, tell about its security considerations.	(15)	BTL 6	Evaluate
3	Evaluate the Ten Sections mentioned ISO/IEC 17799.	(15)	BTL 5	Evaluate
4	Summarize SETA (Security, Education, Training, Awareness) and its elements.	(15)	BTL 5	Evaluate
5	Explain about information security blueprint.	(15)	BTL 3	Apply

UNIT V- PHYSICAL DESIGN			
Security Technology - IDS, Scanning and Analysis Tools – Cryptography - Access Control Devices - Physical Security - Security and Personnel.			
PART-A			
Q.No	Questions	BT Level	Competence
1	Give the mechanisms that access control relies on.	BTL 2	Understand
2	Show the advantages of the intrusion detection systems.	BTL1	Remember
3	List the three ways in which Authorization can be handled.	BTL 1	Remember
4	Analyze the primary disadvantage of application-level firewalls.	BTL1	Remember
5	Quote the different types of Firewalls that are characterized by their structure..	BTL1	Remember
6	Define Hybrid Firewall.	BTL1	Remember
7	Express five generations of Firewalls. Which generations are still common in use?	BTL 2	Understand
8	State Honey Pots.	BTL 1	Remember
9	Differentiate signature-based IDPS and behavior-based IDPS.	BTL 2	Understand
10	Show the use of scanning and Analysis Tools.	BTL 3	Apply
11	Compare Cryptography and Steganography.	BTL 2	Understand
12	Define Cryptography.	BTL 1	Remember

13	Create the factors for selecting the right firewalls.		BTL 2	Understand
14	Assess the controls of protecting the secure facility.		BTL 5	Evaluate
15	Quote the signature based IDS.		BTL 1	Remember
16	Express the information security function that can be placed within any one of the following functions.		BTL 2	Understand
17	Formulate the best practices such that the information security function can be placed within any of the following organizational functions.		BTL 2	Understand
18	Categorize IDPS Detection Methods.		BTL 2	Understand
19	Differentiate Honey Pots and Honey Nets		BTL 2	Understand
20	Classify IDPS.		BTL 1	Remember
21	What is doorknob rattling?		BTL 1	Remember
22	List the advantages of NIDPSs.		BTL 2	Understand
23	Write the advantages of HIDPS.		BTL 1	Remember
24	What is Signature-Based IDPS?		BTL 1	Remember
PART-B				
1	i) Define Scanning and Analysis tools. ii) List and explain the cryptographic algorithms.	(8) (5)	BTL 3	Apply
2	i) Give the names of firewalls categorized by processing mode. ii) Summarize IDPS Terminology.	(4) (9)	BTL 3	Apply
3	Express IDPS Response Options..	(13)	BTL 3	Apply
4.	Examine Strengths and Limitations of IDPs.	(13)	BTL 3	Apply
5	List the Biometric Access Controls.	(13)	BTL 4	Analyze
6	i) Point out the tools used in cryptography. ii) Explain the Man-in-the-middle attack.	(7) (6)	BTL 4	Analyze
7	i) Evaluate Honeypots, Honeynets, and Padded cells. ii) Assess the dictionary attack, Timing attacks, and Defending against attacks.	(6) (7)	BTL 4	Analyze
8	i) Classify architectural implementation of firewalls. ii) Analyze typical relationship among the untrusted network, the firewall, and the trusted network?.	(9) (4)	BTL 4	Analyze
9	Formulate configuring and managing firewalls.	(13)	BTL 6	Create
10	Elaborate vulnerability scanners.	(13)	BTL 3	Apply
11	Explain about Symmetric and Asymmetric Encryption with examples.	(13)	BTL 4	Analyze
12	i) Describe cipher methods. ii) Discuss about protocols for secure communications.	(8) (5)	BTL 4	Analyze

13	Illustrate briefly about the credentials of Information Security Professionals.	(13)	BTL 3	Apply
14	Discuss about Employment Policies and Practices.	(13)	BTL 4	Analyze
15	Explain about IDPS Deployment.	(13)	BTL 3	Apply
16	Write the Effectiveness of IDPSs	(13)	BTL 3	Apply
17	(i)Deploying Network-Based IDPSs (ii)Deploying Host-Based IDPSs	(7) (6)	BTL 4	Analyze
PART C				
1	Explain how does screened host architectures for firewalls differ from screened subnet firewall architectures. Which of these offers more security for the information assets that remain on the entrusted network?	(15)	BTL 6	Create
2	Evaluate how a network-based IDPS differs from a host-based IDPS.	(15)	BTL 5	Evaluate
3	Formulate in detail about the importance of Physical Security.	(15)	BTL 6	Create
4	Create the options available for the location of the information security functions within the organization. Discuss the advantages and disadvantages of each option.	(15)	BTL 6	Create
5	Explain about IDPS Control Strategies.	(15)	BTL 5	Evaluate