SRM VALLIAMMAI ENGINEERING COLLEGE

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

QUESTION BANK

VIII SEMESTER

IT 8073`-INFORMATION SECURITY

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SUBJECT :IT 8073 – INFORMATION SECURITY

SEM/YEAR :VIII/IV

UNIT I - INRODUCTION

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 4	Analyze
3	**Define** Information Security.	BTL 1	Remember
4	**List**thecharacteristics 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 4	Analyze
8	**Give**a short note on E-mail spoofing.	BTL 2	Understand
9	**What** are the measures required to protect confidentiality of information?	BTL 1	Remember
10	**Show** with the help of a diagramabout the components of information Security.	BTL 3	Apply
11	How shall you**design** thecomputer as the subject and object of the attack?	BTL 6	Create
12	**Assess** the importance of a C.I.A triangle	BTL 5	Evaluate
13	**Create** a diagramfor Information Security Implementation.	BTL 6	Create
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 3	Apply
16	**Describe** a Security Team in an organization. Should the approach to	BTL 1	Remember

	security be technical or managerial?		
17	**What** is the use of methodology in the implementation of Information Security?	BTL 1	Remember
18	**Compare**Vulnerability and Exposure.	BTL 4	Analyze
19	**Classify** the three components of the C.I.A Triangle**.**What are they used for?	BTL 3	Apply
20	Information Securityis **which** of the following: An Art or Science or both? Justify your answer.	BTL 5	Evaluate
	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. (8) ii)List the history of Information Security. (5)	BTL 1	Remember
3	i).**What** is NSTISSC Security Model? (8) ii).**Describe**in detail about the top down approach and the bottom up approach with the help of a diagram. (5)	BTL 1	Remember
4.	i). **Identify**the types of attacks in Information Security. (6) ii). **Examine** E-mail spoofing and phishing. (7)	BTL 1	Remember
5	i).**Discuss**aboutthe need for confidentiality in Information Security. (7) ii).**Explain** the file hashing in the integrity of the information. (6)	BTL 2	Understand
6	i) **Examine** the critical characteristics of information security. (7) ii) **Analyse** in detail about the advantages and disadvantages of information security. (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 2	Understand
9	i)**Compose**theroles of Information Security Project Team. (5) ii)**Design** the steps unique to the security systems development life cycle in all the phases of SSDLC model. (8)	BTL 6	Create
10	i)**Illustrate** the different types of instruction set architecture in detail. (7) ii)**Examine** the basic instruction types with examples. (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 1	Remember
12	**i).Infer** about Information Security Project Team. (8) **ii) Analyze** the methodology important in the implementation of information security? How does a methodology improve the process? (5)	BTL 4	Analyze
13	**Analyze** thecritical 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 2	Understand
	PART C		
1	**Assess** the importance of infrastructure protection (assuring the security of utility services) and how that is related to the enhancement of information security? (15)	BTL 5	Evaluate

2	**Formulate** anymethodology, why it 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	Analyze

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
1	**Show** with the help of pointsthe 4 important functions for an organization based on the information security.	BTL 3	Apply
2	**Analyze**the assets in the organization that requires protection.	BTL 4	Analyze
3	**Construct**with the help of a table any 4 threats with its examples.	BTL 3	Apply
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 3	Apply
8	**Analyze**the major differences between a Threat and an Attack.	BTL 4	Analyze
9	**Express** the logic behind using a licence agreement window and the use of online registration process to combat piracy.	BTL 2	Understand
10	**Discuss** about malware.	BTL 6	Create
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 6	Create
13	**Evaluate** the measures that individuals can take to protect themselves from shoulder surfing.	BTL 5	Evaluate
14	**Define**the meaning of theterm'Electronic Theft'.	BTL 1	Remember
15	**Express** about the password attacks.	BTL 2	Understand
16	**State**are 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 & Boot Virus.	BTL 2	Understand
18	**Analyse**about commonplace security principles.	BTL-4	Analyze
19	**List** any five attacks that is used against controlled systems.	BTL 1	Remember
20	**What**is the difference between a denial-of-service attack and a distributed denial-of-service attack? Which is more dangerous? Why?	BTL 5	Evaluate
	PART-B		
1	i).**Discuss**about the threats. (6) ii).**Express**about five criterias for a policy to become enforcebale. (7)	BTL 2	Understand
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 towards an administrator's assistant versus a data-entry clerk? (13)	BTL 3	Apply
3	**Describe** about the types of Laws and Ethics in Information Security. (13)	BTL 1	Remember
4	**How will you develop**management groups that are responsible for implementing information security to protect the organization's ability to function ? (13)	BTL 6	Create
5	i) **State**the types of password attacks. (6) ii)**Tell** the three ways in which an authorization can be handled. (7)	BTL 1	Remember
6	i)**Express**in detail about : (a) Protecting the functionality of an organization (2) (b) Enabling the safe operations of Applications (2) (c) Protecting data that organizations collect and use (2) (d) Safeguarding Technology Assets in organizations (2) ii)**Discuss** in detail about worms. (5)	BTL 2	Understand

7	**Analyze**in detail about Ethics and Information Security. (13)	BTL 4	Analyze
8	i)**Examine**in detailabout Access control list. (8) ii)**Give**an example of Systems-specific policy. (5)	BTL 1	Remember
9	**i)List** the Computer Security Hybrid Policies. (7) ii) **Describe**the types of Computer Security. (6)	BTL 1	Remember
10	i)**Quote** the confidentiality policies. (7) ii)**Discuss**in detail about the types of security policies. (6)	BTL 2	Understand
11	i)**Explain**Integrity Policies. (6) ii)**Assess**the Secure Software Development. (7)	BTL 5	Evaluate
12	**Analyze** whether information security a management problem? What can management do that technology cannot? (13)	BTL 4	Analyze
13	**Pointout** why data 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 ability to function. (13)	BTL 3	Apply
	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.	**Evaluat**e which management groups are responsible for implementing information security to protect the organization's ability to function? (15)	BTL 5	Evaluate
3	**Summarize**how 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

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 asset's ability to generate revenue and its ability to generate profit.	BTL 2	Understand
7	**Name** thetypes of Information classification.	BTL 1	Remember
8	**Evaluate**the strategies for controlling risk.	BTL 5	Evaluate
9	**State**the vulnerabilities in Risk Management.	BTL 1	Remember
10	**Design**a table to list the threats and their related examples.	BTL 6	Create
11	**Classify** the Quantitative and Qualitative Risk Control Practices.	BTL 4	Analyze
12	**Show** with relevant exampleshow Microsoft follows best practices for Risk Management.	BTL 3	Apply
13	**Assess** the metric based measures used in benchmarking.	BTL 5	Evaluate
14	**Tell** the Ten Immutable Laws of Security offered by the Microsoft.	BTL 1	Remember
15	**Show** the Risk Management.	BTL 3	Apply
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 3	Apply
19	**Classify** the information contained in the computer or personal digital assistant. Based on the potential for misuse , what information would be confidential, sensitive, unclassified for public release?	BTL 4	Analyze
20	**Generalize**the strategies for controlling risk.	BTL6	Create
	PART-B		
1	**Discuss**in detail about Risk Management. (13)	BTL 2	Understand
2	**Describe**and drawthe components of Risk Identification. (13)	BTL 1	Remember
3	i) **Define** Information Classification Scheme. (3) ii)**Describe** the threats that represent danger to organization's information. (10)	BTL 1	Remember
4	**Design** and develop Risk Assessment using sample TVA spreadsheet. (13)	BTL 6	Create
5	i)**Design** Risk control strategies. (8) ii)Examine Risk Handling Decision points. (5)	BTL 1	Remember
6	i).**Summarize** Cost Benefit Analysis. (9) ii).**Distinguish** the Defend control strategy and Transfer control strategy. (4)	BTL 2	Understand
7	i).**Discuss**in detail about Benchmarking. (7)	BTL 4	Analyze

	ii).**Explain** with an example about the best practices followed in an organization. (6)		
8	**Assess** the reasonas to why the periodic review be a part of the process in risk management strategies. (13)	BTL 5	Evaluate
9	**Examine**as to how Risk appetite varies from organization to organization. (13)	BTL 3	Apply
10	i)**Analyze**which is more important to thesystems components classification scheme. (7) ii)**Describe** Incidence Reponse Plan. (6)	BTL 4	Analyze
11	**Express**the Security Incident Handling. (13)	BTL 2	Understand
12	i)**Explain**in detail about Information Flow. (7) ii).**Pointout** the Confinement Problem. (6)	BTL 4	Analyze
13	i)**Define** Access Control List. (8) ii) **Differentiate**between various Feasibility Studies for organization's strategic objectives. (5)	BTL 1	Remember
14	With a suitable diagram .examineabout the Risk Management. (13)	BTL 3	Apply
	PART C		
1	**Formulate** the points for Hardware , Software and Network Asset Identification. (15)	BTL6	Create
2	**Explain** in detail about System Access control Mechanism. (15)	BTL 5	Evaluate
3	**Evaluate** with a proper example about the Risk Identification in detail. (15)	BTL 5	Evaluate
4	**Develop** necessary points with any example for Assets Identification and valuation. (15)	BTL 6	Creating

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 Information Security Blueprint.	BTL 1	Remember
3	**Give**the five goals of Information Security Goverernance.	BTL 2	Understand
4	**Pointout**the five criteriasfor a policy to be effective and thus legally enforceable.	BTL 4	Analyze

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 5	Evaluate
9	**Formulate**the significant points in the scope of NIST SP 800-14.	BTL 6	Create
10	**Analyze**the name 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 6	Create
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	**Pointout**the components of Contigency Planning.	BTL 4	Analyze
16	**Examine**using the diagram for spheres of security.	BTL 3	Apply
17	**Show** the different stages in the Business Impact Analysis step.	BTL 3	Apply
18	**Assess**thee commonly accepted Security Principles.	BTL 5	Evaluate
19	**Differentiate**	BTL 2	Understand
20	**Examine** the fivetesting strategies of Incident Planning.	BTL 3	Apply
	PART-B		
1	i)**List** the 3 types of security policies. (8) ii)**Identify**the components of ISSP. (5)	BTL 1	Remember
2	**Elaborate**briefly about Information Security Blueprint. (13)	BTL 1	Remember
3	i)**Give**the details of the types of policies in Information Security. (4) ii)**Identify**the inherent problems withISO 17799. (9)	BTL 2	Understand
4	**Express**in detail about ISO 17799/BS 7799. (13)	BTL 2	Understand
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 1	Remember
7	i)**Demonstrate**with a diagram about the guidelines, purposes used to achieve using ISO/IEC 17799. ii)**Illustrate**where can a security administrator find information on established security frameworks?	(8) (5)	BTL 3	Apply
8	i)**Evaluate**VISA International Security Model. ii) **Summarize**planning for Continuity.	(5) (8)	BTL 5	Evaluate
9	**Design**Security Architecture and explain the goals used for achieving it.	(13)	BTL 6	Create
10	**Analyze** what Web resources can aid an organization in developing best practices as part of a security framework?	(13)	BTL 4	Analyze
11	**Pointout**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 1	Remember
13	**Discuss**briefly aboutpolicy, a standard, and a practices with any example.	(13)	BTL 2	Understand
14	**Illustrate** briefly about Incident Response Methodology.	(13)	BTL 3	Apply

PART C

1	How shall you **create** framework and blueprint for Information Security ? **Design** diagrams and with 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

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.	BTL 3	Apply

3	**List** the three ways in which Authorization can be handled.	BTL 1	Remember
4	**Analyze** the primary disadvantage of application-level firewalls.	BTL 4	Analyze
5	**Quote** the different types of Firewalls that are characterized by its 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 5	Evaluate
12	**Define** Cryptography.	BTL 1	Remember
13	**Create** the factors for selecting the right firewalls.	BTL 6	Create
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 6	Create
18	**Categorize** IDPS Detection Methods.	BTL 4	Analyze
19	**Differentiate** Honey pots and Honey Nets	BTL 4	Analyze
20	**Classify** IDPS.	BTL 3	Apply
	PART-B		
1	i**) Define** Scanning and Analysis tools. (8) ii) **List** and explain the cryptographic algorithms. (5)	BTL 1	Remember
2	i) **Give** the names of firewalls categorized by processing mode. (4) ii) **Summarize** IDPS Terminology. (9)	BTL 2	Understand
3	**Express** IDPS Response Options.. (13)	BTL 2	Understand
4	**Examine** Strengths and Limitations of IDPs. (13)	BTL 3	Apply
5	**List** the Biometric Access Controls. (13)	BTL 1	Remember
6	i) **Pointout** the tools used in cryptography. (7) ii) **Explain** Man-in-the middle attack. (6)	BTL 4	Analyze
7	i) **Evaluate** Honeypots, Honeynets,Padded cells. (6) ii) **Assess** the dictionary attack, Timing attacks and Defending against attacks. (7)	BTL 5	Evaluate

8	i) **Classify** architectural implementation of firewalls**.** (9) ii) **Analyze** typical relationship among the untrusted network, the firewall, and the trusted network?. (4)		BTL 4	Analyze
9	**Formulate** configuring and managing firewalls.	(13)	BTL 6	Create
10	**Elaborate** vulnerability scanners.	(13)	BTL 1	Remember
11	**Explain** about Symmetric and Asymmetric Encryption with examples.	(13)	BTL 4	Analyze
12	**i) Describe** cipher methods. (8) **ii) Discuss** about protocols for secure communications. (5)		BTL 1	Remember
13	**Illustrate** briefly about the credentials of Information Security Professionals.	(13)	BTL 3	Apply
14	**Discuss** about Employment Policies and Practices.	(13)	BTL 2	Understand
	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 does a network-based IDPS differ 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