

Time: 2½ Hours

Total Marks: 75

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt any three of the following:**

15

- Describe the CIA triad model and explain its fundamentals.
- Define a computer virus and discuss its different types in detail.
- Why is protecting information important? Provide an explanation.
- Explain the Onion defense model with suitable details.
- What are the key aspects of threats in security? Explain.
- Illustrate a typical attack scenario and describe how it unfolds.

2. **Attempt any three of the following:**

15

- Write a short note on Kerberos.
- Summarize the concept of biometric authentication and discuss its applications in modern security systems.
- Compare Symmetric key cryptography and asymmetric key cryptography.
- What are the common causes for digital certificate revocation? How is it checked?
- Explain the authentication process of Smart card implementation.
- Give any two confidentiality risks in detail.

3. **Attempt any three of the following:**

15

- Define network hardening and list the essential steps used to enhance network security.
- Describe the concept of A full high-availability network design
- Explain functions of OSI layers in brief
- Discuss the features of Cisco Hierarchical Internetworking Model.
- What are the strengths and weaknesses of Firewall? Explain.
- Describe the different types of ICMP messages.

4. **Attempt any three of the following:**

15

- a. Write a short note on Anomaly-Detection (AD) Model
- b. Explain First Generation IDS and Second Generation IDS.
- c. Describe the SQL injection attack of Web application.
- d. Discuss the purpose of ACL.
- e. What are the types of classic security models? Explain.
- f. Write a short note on SIP.

5. **Attempt any three of the following:**

15

- a. Write a short note on cloud Computing.
 - b. Explain how corporate physical assets are classified.
 - c. Discuss the concepts of Phishing and Hijacking.
 - d. Write a short note on Custom Remote Administration.
 - e. What is virtual machine? Explain the protection of hypervisor.
 - f. What are the types of Cloud services? Explain.
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