

(3 Hours)

[Total Marks: 80]

- N.B.: (1) Question No. 1 is **compulsory**.  
(2) Solve any **three** questions out of remaining **five**.  
(3) Figures to **right** indicate **full** marks.  
(4) Assume suitable **data** where **necessary**.

1. a) Explain Biometric authentication. [5]  
b) Explain Vulnerability, Threat and Attack. [5]  
c) What is Distributed Denial of Service Attack? [5]  
d) Describe TCP Syn Flood attack. [5]
2. a) Explain different types of Firewalls that can be used to secure a network. [10]  
b) Explain RSA algorithm for public key encryption. Given modulus  $N = 143$  and public key  $e = 7$ , find the values of  $p$ ,  $q$ ,  $\phi(n)$ , and private key  $d$ . Can we choose value of  $e = 5$ ? Justify. [10]
3. a) What is Digital Signature? Explain how it is created by sender and verified by receiver. [10]  
b) What is session hijacking? Give two ways to prevent a session hijacking attack. [10]
4. a) What are the different approaches to Software Reverse Engineering? [10]  
b) Explain the need of Intrusion Detection System (IDS)? Differentiate between signature based and anomaly based IDS. [10]
5. a) What are the file system vulnerabilities for a Linux system? [10]  
b) What is SSO? Explain the working of Kerberos Authentication Protocol (KAP) [10]
6. Write short notes on: (Any Four)
  - a) Honey Pots [5]
  - b) Secure email [5]
  - c) Federated Identity Management [5]
  - d) CIA Security goals [5]
  - e) Incomplete Mediation [5]