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NETWORK MANAGEMENT AND SECURITY
Paper–CSE-306

Time : Three Hours]   [Maximum Marks : 100

Note : Attempt *five* questions in all, selecting at least *one* question
from each unit. All questions carry equal marks.

UNIT–I

1. (a) Illustrate the differences between database of a network
management system and its Management Information
Base. How do you implement each in a network
management system ?

   (b) What are the different type of digital signatures ? How
   is Digital Signature Standard approach different from
   RSA approach in finding digital signatures ?

2. (a) Define the following terms :

   (i) Fabrication.

   (ii) Avalanche Effect.

   (iii) Poly-alphabetic Substitution.

   (iv) Bucket Brigade Attack.

   (v) Non-repudiation.

   (b) Why do some block cipher modes of operation only
   use encryption while other use both encryption and
   decryption. Also, explain how confusion and diffusion
   can be added to DES algorithm ?

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UNIT–II

3. (a) Describe the Chinese wall security policy. When does the race condition arise ? Also, what are the low-level protection mechanisms for operating system ?

(b) Discuss program flaws that have security implications for Operating System. Also, explain the concept of Bell-La Padula access control model and list its limitations.

4. (a) What do you understand by Heisenbug and Bohr bug ? How are these different from each other ? Explain using suitable examples.

(b) Differentiate between the following with appropriate examples :
   (i) Biba and Clark-Wilson.
   (ii) Discretionary and Mandatory Access Control.
   (iii) Access Matrix and Access Control.

UNIT–III

5. Define the following in brief :

(a) Chain of certificates and revocation of X.509 certificate.

(b) Kerberos realm.

(c) IPSEC.

6. (a) Explain in briefly the taxonomy of malicious programs.

(b) Explain various classes of intruders.

(c) What are the basic techniques of choosing passwords ?

(d) Explain the architecture of distributed intrusion detection systems.

UNIT–IV

7. Differentiate between Distributed Denial of Service attack and Denial of Service attack. Explain various types of mechanisms in which DDoS can be generated with suitable examples.

8. List the design goals of different kinds of firewall. Also, discuss the techniques used by firewalls to control access and enforce security policies.