No. of Printed Pages : **2**

Sl. No.

B5.3-R4 : NETWORK MANAGEMENT & INFORMATION SECURITY

NOTE :

1. **Answer question 1 and any FOUR from questions 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time : 3 Hours **Total Marks : 100**

1. (a) State in brief four primary functions of CERT.

(b) What are the unicast and multicast packets ? By examining the addresses used, determine whether the packet is multicast or unicast.

(c) In what matter Dictionary Attack is different from Brute Force Attack ?

(d) What is biometrics and biometrics authentication ?

(e) How a hash function can be used to provide message authentication without using a key ?

(f) Define the terms : Virus, Worm, Trojan Horse and Logic Bomb.

(g) What is an application level firewall and why is it necessary ? **(7x4)**

2. (a) Why does Encapsulating Security Payload (ESP) include a padding field ?

(b) Explain the Digital Signature Standard (DSS) approach to digital signatures.

(c) What is Risk Assessment in reference to information security ? **(6+6+6)**

3. (a) What does SNMP define as manager, agent and client ? Why does SNMP need SMI and MIB to manage a network ? How are they related to UDP ?

(b) Describe the advantages and disadvantages of symmetric and asymmetric key cryptography. **(9+9)**

4. (a) What are the benefits of an Intrusion Detection System ? Explain.

(b) What is RARP ? How is it different from ARP (Address Resolution Protocol) ?

(c) Write the formal definition of Role Based Access Control. What are the advantages of using Role Based Access Control over Mandatory Access Control (MAC) and Discretionary Access Control (DAC) ? **(5+4+9)**

5. (a) The Internet Control Message Protocol (ICMP) is a troubleshooting tool used by technicians to find errors on a network and it communicates errors on a network as they occur. How ICMP differs from TCP and UDP ? Does ICMP guarantee delivery ? Justify.

(b) Name the main component of the public key cryptosystem and formulate the security requirements. Discuss the use of them for security and authenticity. **(9+9)**

6. (a) What are the conditions prescribed in IT Act 2000 for the purpose of Electronic Governance to retain documents, record or information in electronic form for any specified period ?

(b) How does RSA based digital signature help in "non-repudiation" ? Explain with a concrete example scenario between a sender and receiver.

(c) Explain the major issues in Security Policy implementation in organization. **(6+6+6)**

7. (a) What is Trojan Horse ? Explain in brief some functions of the Trojan.

(b) Which basic arithmetical and logical functions are used in SHA-1 ? Explain functions in short.

(c) Explain in detail how Pretty Good Protocol Encryption works ? **(5+4+9)**

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