

- N.B.**
- 1) All questions are compulsory.
  - 2) Figures to the right indicate marks.
  - 3) Illustrations, in-depth answers and diagrams will be appreciated.
  - 4) Mixing of sub-questions is not allowed.

**Q. 1 Attempt the following (Any THREE)**

(15)

- (a) Explain the Header format of ARP packet.
- (b) Give one line description for any 5 fields of IPv4 packet Header.
- (c) Write a short note on BOOTP?
- (d) Write short note in Routing Information Protocol (RIP).
- (e) Why do routers need routing table? Explain static and dynamic routing in detail.
- (f) Explain any two ways to perform transition from IPv4 to IPv6.

**Q. 2 Attempt the following (Any THREE)**

(15)

- (a) Describe the fields of UDP Header.
- (b) Explain the process of three-way handshaking in TCP.
- (c) Briefly Describe the Congestion Control Technique in TCP
- (d) Write short note on FTP.
- (e) Draw the electronic email transfer diagram and explain the following components of electronic email:
  - i. Message Transfer Agent (MTA)
  - ii. Message Access Agent (MAA)
- (f) Explain the persistent and non-persistent connections in HTTP.

**Q. 3 Attempt the following (Any THREE)**

(15)

- (a) Write Short Note on Denial of Service Attack.
- (b) Describe the Digital Immune System.
- (c) Explain the different generations of antivirus.
- (d) State the characteristics and limitations of firewall.
- (e) Give any five measures to protect hacking.
- (f) Explain the following Host Based Malicious program:
  - i. Trojan Horse
  - ii. Viruses

**Q. 4 Attempt the following (Any THREE)**

- (a) Encrypt the plain text "MUMBAI" using additive cypher key 12.
- (b) Write the steps involve in general purpose encryption algorithm.
- (c) Write Message Digest Algorithm
- (d) Distinguish between TLS and SSL.
- (e) Write Short note on IPsec
- (f) Explain the working of Digital Signature.

(15)

**Q. 5 Attempt the following (Any THREE)**

- (a) What is IP Address?  
Find the error, if any, in the following IPv4 addresses.
  - i. 111.56.045.78
  - ii. 221.34.7.8.20
  - iii. 75.45.301.14
  - iv. 11100010.23.14.67
- (b) Write a short note on DHCP.
- (c) Discuss Multicast, Unicast and Broadcast.
- (d) Explain following Close Loop Congestion Control Technique
  - i. Backpressure
  - ii. Choke Packet
- (e) Explain the structure of Encapsulating Security Payload (ESP)
- (f) Write the steps involve in ELAGMAL encryption procedure.

(15)

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