

316338

25226

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data, if necessary.
(5) Use of Non-programmable Electronic Pocket Calculator is permissible.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following :** **10**
- a) Compare LAN and MAN on the basis of following parameters.
 - i) Geographical area
 - ii) Speed
 - b) Classify network on the basis of physical size.
 - c) State two advantages of Fiber optic cable.
 - d) State two advantages of Selective Repeat ARQ.
 - e) State any two advantages of the Sliding Window Protocol.
 - f) Define Firewall and state its types.
 - g) State two Protocols used in application layer.

P.T.O.

2. Attempt any THREE of the following : 12

- a) Draw following topologies with labelled diagram and State its advantages, disadvantages
 - i) Mesh Topology
 - ii) Tree Topology
- b) Compare ADSL, HDSL and VDSL scheme on the basis of -
 - i) Mode - Symmetric/Asymmetric
 - ii) No. of twisted pair copper wires
 - iii) Upstream and downstream data rate
 - iv) Modulation technique
- c) Explain the frame format of PPP protocol.
- d) Justify why IMAP is preferred over POP in modern e-mail systems.

3. Attempt any THREE of the following : 12

- a) Differentiate between Peer-to-Peer and Client-Server networks.
- b) Explain following addressing in TCP/IP reference model
 - i) Port addressing and
 - ii) Logical addressing
- c) Explain stop and wait ARQ protocol with example.
- d) Explain the steps to transfer files using FTP.

4. Attempt any THREE of the following : 12

- a) Describe following network devices used in computer network
 - i) HUB
 - ii) Bridge
- b) Suggest the topology for military application with justification. Give advantages and disadvantages of that topology
- c) State the names of the layers that perform the following functions -
 - i) Encryption/Decryption
 - ii) Logical Addressing
 - iii) File transfer
 - iv) Error Correction
- d) Compare IPV4 and IPV6 packet format. (any 4 points)
- e) Describe functioning of DNS in internet.

5. Attempt any TWO of the following : 12

- a) i) State two Protocols used in each layer
 - (1) Data Link Layer
 - (2) Network Layer
- ii) Explain datagram approach for packet switching.
- b) Compute the CRC codeword for the data sequence 11101011 using generator 1001.
- c) Identify the class, network ID, and host ID of the IP address
 - i) 45.34.67.89
 - ii) 98.120.45.10
 - iii) 10.25.35.45

6. Attempt any TWO of the following : 12

- a) i) State the types of error detection methods.
 - ii) The received data sequence 0101110 follows a 7-bit odd parity Hamming scheme. Check for errors and reconstruct the valid transmitted code.
 - b) i) Draw block diagram of asymmetric key cryptography and state the function of various components.
 - ii) Compare Symmetric and Asymmetric Key Cryptography. (Any 2 points)
 - c) i) Explain working of TELNET and state the port number which Telnet uses for remote login.
 - ii) State applications of TELNET. (Any 4)
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