

- 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) Preferably, write the answers in sequential order.

1. (a) Attempt any **SIX** of the following: [12]
- (i) List out the advantages and drawbacks of bus topology.
  - (ii) Is there any relationship between transmission media and topology?
  - (iii) What's The Difference Between Bit Rate And Baud Rate?
  - (iv) What are the different types of cabling supported by Ethernet standard?
  - (v) Why are protocols needed?
  - (vi) How are the guided media differing from unguided transmission media?
  - (vii) Define IP address.
  - (viii) What is meant by segmentation?
1. (b) Attempt any **TWO** of the following: [8]
- (i) State the difference between TDM and FDM.
  - (ii) Compare circuit-switched and packet-switched networks.
  - (iii) Explain modes of channel operation, namely simplex, half-duplex and full-duplex operation.
2. Attempt any **FOUR** of the following: [16]
- (a) What is Data Communication?
  - (b) Explain in detail about Coaxial Cable.
  - (c) What is the difference between network layer delivery and the transport layer delivery?
  - (d) Explain the problems in OSI Model and Protocols.
  - (e) Describe Bluetooth Architecture.
  - (f) Compare the two methods of serial transmission.
3. Attempt any **FOUR** of the following: [16]
- (a) Write a short note on Satellite communication.
  - (b) Differentiate Connection-Oriented and Connectionless Services.
  - (c) Briefly discuss about Internetwork routing.
  - (d) Write briefly about Error detection and correction.
  - (e) Write a short note on Bus and Star Topology.
  - (f) Explain vertical communication in OSI.
4. Attempt any **FOUR** of the following: [16]
- (a) Compare FTP and TFTP.
  - (b) Explain in detail about ISO-OSI reference Model.

- (c) Explain about client-server model.
- (d) Explain in detail about Peer-to-peer Communication.
- (e) Explain address resolution protocol.
- (f) Write in short about Hub, Repeater, Bridge and switch.

5. Attempt any **FOUR** of the following: [16]

- (a) What is DNS, explain in detail.
- (b) Compare Virtual-Circuit and Datagram Subnets.
- (c) Write the differences between WiFi and Wi-MAX.
- (d) Describe TCP and UDP.
- (e) Explain FDDI in detail.
- (f) What is the difference between single mode and multimode fibers in fiber optic networks?

[16]

6. Attempt any **FOUR** of the following:

- (a) Describe ICMP.
- (b) Explain TCP connections in detail.
- (c) What are the differences between DSL and Cable modem.
- (d) (i) How many subnets and hosts per subnet can you get from the network 172.28.0.0/26?  
(ii) Which subnet does host 172.24.43.112/25 belong to?
- (e) Explain TCP/IP model with neat diagram.
- (f) State the limitations of Ethernet.

