



- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data whenever necessary.
 4. Illustrate your answers whenever necessary with the help of neat sketches.
 5. Answer **six** questions.

1. a) What is data communication? Explain in detail the characteristics of data communication. **7**
b) Discuss the model of data communication. **6**

OR

2. a) What is protocol? Explain different elements of protocol. **7**
b) Explain different data flow technique. **6**
3. a) Write short note on peer to peer processes. **6**
b) Explain the different design issues of layered protocol. **8**

OR

4. a) Explain different application layer protocols. **6**
b) Write in detail on any one layered protocol discussing the function of all layers in it. **8**
5. a) Discuss the various transmission impairments. **6**
b) Compare asynchronous and synchronous ways of data transmission. **7**

OR

6. a) Write in detail on various block coding schemes. **6**
b) What do you mean by sampling and quantization? Explain different schemes for converting analog signal to digital data. **7**
7. a) Write short notes on following. **8**
i) ASK
ii) FSK
b) Explain different ways of analog to analog conversion. **6**

OR

8. a) Differentiate between TDM and FDM. 6
b) Explain in detail how circuit switching network works. Discuss the limitations of circuit switching. 8
9. a) Which guided media gives high bandwidth? Explain it in detail. 7
b) Write the characteristics and application of co-axial cable. 6

OR

10. a) Explain the different types of connectors used in guided media. 7
b) Write short notes on. 6
i) Radio waves
ii) Microwaves communication.
11. a) Write in short on following. 7
i) Repeaters
ii) Hub
iii) Switch
iv) Router
b) Differentiate between internet and intranet. 6

OR

12. a) Explain WAN in detail giving an example. 6
b) Compare Bus, Ring and star topologies for computer Network communication. 7
