

Q.P. Code: 20939**(Time: 2½ hours)****Total Marks: 75**

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt any three of the following: **15**

- a. Define Data Communication. Explain its various components.
- b. List and explain the functions of ISO's OSI Model Layers.
- c. What do you mean by Transmission line Impairments? Explain in detail.
- d. Explain the following terms in relation with Data Communication
 - (i) Half Duplex System.
 - (ii) Full Duplex System.
- e. Define Modulation. Write a short note on Amplitude Modulation.
- f. Explain the following terms of Data Transmission
 - (i) Parallel Transmission.
 - (ii) Serial Transmission.

2. Attempt any three of the following: **15**

- a. Differentiate between Frequency Division Multiplexing (FDM) and Time Division Multiplexing (TDM).
- b. Write a short note on Spread Spectrum Modulation (SSM) techniques along with its Application.
- c. Discuss the major classifications of transmission media.
- d. What is Packet Switching? Explain its methods of implementation.
- e. Define *Error* under scope of networking and explain its types.
- f. Explain the following terms
 - (i) Forward Error Correction (FEC).
 - (ii) Automatic request for Retransmission (ARQ).

3. Attempt any three of the following: **15**

- a. Explain ALOHA system with its two versions.
- b. Discuss **GO BACK N ARQ** protocol in detail.
- c. Explain Bluetooth Layered Architecture.
- d. Differentiate between satellite communication and optical communication.
- e. Explain the following connecting devices in networking
 - (i) Bridge.
 - (ii) Gateway.
- f. Explain CSMA with collision detection.

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- 4. Attempt any three of the following:** **15**
- a. Explain the terms:
- (i) Connection Oriented Network Services.
 - (ii) Connectionless Network Services.
- b. Write a short note on static algorithm and explain any two.
- c. What is fragmentation? Explain its various strategies.
- d. Draw and explain IPv4 header structure.
- e. For a given class 'C' network 195.188.65.0 design equal subnets in such a way that each subnet has atleast 60 nodes.
- f. A class 'B' network on the internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts per sub networks?
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- 5. Attempt any three of the following:** **15**
- a. Write a short note on TCP.
- b. Explain Addressing Issues of transport Protocol.
- c. What do you mean by Domain Name System? What is the use of the same?
- d. Explain Simple Mail Transfer Protocol (SMTP).
- e. Write a short note on following
- (i) TELNET.
 - (ii) FTP.
- f. Differentiate between TCP and UDP.
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