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?

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.
