Sl. No.

B1.5-R5 : DATA COMMUNICATION AND COMPUTER NETWORKS

NOTE :
1. Answer question 1 and any FOUR questions from 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

Time : 3 Hours   **Total Marks : 100**

1. (a) What are the different types of network ?
   (b) What are the network layer design issues ?
   (c) Draw the TCP Header neatly.
   (d) Explain Classful Addressing scheme.
   (e) What is DNS ? Explain in brief.
   (f) Discuss Real-Time Transport Protocol.
   (g) List down socket server and socket client methods.

                                                                                                    (7x4)

2. (a) What are various switching techniques ?
   (b) List and explain types of routing.
   (c) Consider the following message M =1010001101. Find the cyclic redundancy check (CRC) for this message using the divisor polynomial $x^5 + x^4 + x^2 + 1$.

                                                                                                    (6+6+6)

3. (a) Elaborate ARP and explain its working.
   (b) Explain mechanism of FTP and List Socket API functions.
   (c) List down advantages and disadvantages of MQTT protocol.

                                                                                                    (6+6+6)

4. (a) List components of data communication. Classify transmission media through diagram.
   (b) Explain TCP and UDP in brief.
   (c) Explain Client and Server model in context of Application Layer.

                                                                                                    (8+6+4)

5. (a) Explain types of Content Delivery Networks and list down service queuing mechanism.
   (b) Mention the requirements for fiber channels.
   (c) Explain RSVP.   **(7+6+5)**

6. (a) What is subnetting ? Write down the number of blocks and block size in classful IPv4 addressing.
   (b) Define the following :
       switches, hub, routers, gateway, repeater.
   (c) What is Multiplexing ? List the types of multiplexing techniques and explain any one.
                                                                                                    (6+6+6)

7. (a) Compare three key long-distance communication technologies named X.25, frame relay and ATM.
   (b) What are the central tasks of the Control Plane with its Network Controller ?
   (c) What is wireless networking? What is the relationship between wireless networking and IEEE 802.11 ? If a computer is connected to a wireless LAN, can it communicate with computers on a wired LAN as well.   **(9+5+4)**

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