

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023****Subject Code:3143201****Date:17-01-2024****Subject Name: Data Communication & Computer Networks****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

|            |  | MARKS     |
|------------|--|-----------|
| <b>Q.1</b> | (a) Differentiate Circuit Switched and Packet Switched Network.                      | <b>03</b> |
|            | (b) What is Signal? Explain Types of Signals.  | <b>04</b> |
|            | (c) Explain OSI Reference Model with Diagram. (Brief Description of Each Layer).     | <b>07</b> |
| <b>Q.2</b> | (a) Explain Single-Bit Error and Burst Error.  | <b>03</b> |
|            | (b) Differentiate Serial transmission and Parallel transmission.                     | <b>04</b> |
|            | (c) What is Delay? List and Explain Types of Delays.                                 | <b>07</b> |
| <b>OR</b>  |  |           |
|            | (c) Explain CRC with example   | <b>07</b> |
| <b>Q.3</b> | (a) Define following terms: ASK, FSK and PSK.  | <b>03</b> |
|            | (b) Differentiate between Connection Oriented Services and Connection Less Services. | <b>04</b> |
|            | (c) Explain HDLC Frames. List and Explain HDLC Frames Types.                         | <b>07</b> |
| <b>OR</b>  |  |           |
| <b>Q.3</b> | (a) Write Full Form: CRC, HDLC, TCP, UDP, OSI and TCP/IP.                            | <b>03</b> |
|            | (b) Draw and explain IPv6 Datagram Header.   | <b>04</b> |
|            | (c) Explain Go Back N Protocol in detail.  | <b>07</b> |
| <b>Q.4</b> | (a) Difference between IPv4 and IPv6.  | <b>03</b> |
|            | (b) Draw and explain UDP Header.   | <b>04</b> |
|            | (c) Explain Distance Vector Routing with Example.                                    | <b>07</b> |
| <b>OR</b>  |  |           |
| <b>Q.4</b> | (a) Write note on: Internet Control Message Protocol (ICMP).                         | <b>03</b> |
|            | (b) Explain IEEE standards 802.4 and IEEE standards 802.5.                           | <b>04</b> |
|            | (c) What is Aloha Protocol? Explain Types of Aloha Protocols.                        | <b>07</b> |
| <b>Q.5</b> | (a) Write a short note following protocols: POP3 and IMAP.                           | <b>03</b> |
|            | (b) What is HTTP? Explain Types of HTTP Connections.                                 | <b>04</b> |
|            | (c) List out MAN Protocols. Draw and explain ATM Layers.                             | <b>07</b> |
| <b>OR</b>  |  |           |
| <b>Q.5</b> | (a) Define following terms: Confidentiality, Integrity and Availability.             | <b>03</b> |
|            | (b) Draw Structure of Email. Explain Working of E-mail.                              | <b>04</b> |
|            | (c) Write a Public key Algorithms (RSA Algorithms) with example.                     | <b>07</b> |

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