

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2024

Subject Code:2171008

Date:22-05-2024

Subject Name:Data Communication and Networking

Time:02:30 PM TO 05:00 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
Q.1	(a) Compare PAN, LAN, MAN, & WAN in terms of geographical area covered.	03
	(b) Differentiate between connection oriented services and connection less services	04
	(c) Draw the OSI reference model. Write down various duties performed by each layer.	07
Q.2	(a) Compare the working of packet switching network and circuit switching network	03
	(b) Explain the concept of piggybacking.	04
	(c) Explain the architecture and communication model of HDLC protocol	07
	OR	
	(c) Explain CSMA/CD and CSMA/CA protocol in detail.	07
Q.3	(a) Compare Go-Back-N & Selective Repeat ARQ protocols.	03
	(b) Discuss Voice over IP and Video streaming in briefly. Also comment on their QoS requirements.	04
	(c) Draw and explain all fields of TCP segment header. Also state functions of each flag.	07
	OR	
Q.3	(a) Justify how slotted ALOHA is better than pure ALOHA.	03
	(b) Explain class full addressing.	04
	(c) What is the role of routing algorithms at network layer? Explain Distance Vector routing algorithm in detail.	07
Q.4	(a) Explain fragmentation with appropriate example.	03
	(b) One of the address in a block is an 110.23.120.14/20. Find • Number of addresses. • Subnet mask. • First address in the block. • Last address in the block.	04
	(c) Describe the format of IPv4 datagram with the help of a diagram, highlighting the significance of each field.	07
	OR	
Q.4	(a) Explain Email architecture and Email protocols.	03
	(b) Write short note on RIP protocol.	04
	(c) Write note on leaky bucket algorithm.	07

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| Q.5 | (a) | Explain the File Transfer Protocol (FTP) and its features. | 03 |
| | (b) | How HTTP works? Explain in brief. | 04 |
| | (c) | Explain the Data Encryption Standard (DES) in details. | 07 |
| | | OR | |
| Q.5 | (a) | Compare private -key & public-key algorithms. | 03 |
| | (b) | Explain hierarchical routing in network layer. | 04 |
| | (c) | What is DNS? How resource records are maintained in DNS? | 07 |
