GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI EXAMINATION – SUMMER 2025

Subject Code:3161007   **Date:28-05-2025**
Subject Name: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
Q.1	**(a)**	Explain Local Area Network (LAN).	03
	(b)	Compare Error Detection vs. Error Correction.	04
	(c)	Draw and explain ISO OSI model and list out major functionalities of all the layers with necessary diagrams.	07
Q.2	**(a)**	Compare OSI model vs. TCP/IP model.	03
	(b)	Compare Circuit Switching vs. Packet Switching.	04
	(c)	Classify and explain Transmission Media in detail.	07
		OR	
	(c)	What is Network topology? Explain various network topologies with necessary diagrams and examples.	07
Q.3	**(a)**	Discuss bit stuffing and unstuffing in detail.	03
	(b)	Explain Go-Back-N ARQ.	04
	(c)	Write a note on HDLC protocol.	07
		OR	
Q.3	**(a)**	Explain Sliding Window Protocol.	03
	(b)	Write a short note on Ethernet technology.	04
	(c)	Discuss channel allocation problem. Explain Slotted ALOHA with necessary diagrams.	07
Q.4	**(a)**	What is Congestion? Classify Congestion Control Algorithms.	03
	(b)	Explain Hub, Bridge, Switch and Router.	04
	(c)	What is Routing? Explain Shortest path algorithm in detail.	07
		OR	
Q.4	**(a)**	Compare TCP vs. UDP.	03
	(b)	Explain Bluetooth technology.	04
	(c)	What is IP address? Explain various classes of IP addresses with example.	07
Q.5	**(a)**	What is Cryptography? List out various ciphers.	03
	(b)	Draw and explain IPV4 header with necessary diagrams.	04
	(c)	Explain Domain Name System (DNS).	07
		OR	
Q.5	**(a)**	Discuss various social issues related to security over Internet.	03
	(b)	Write a note on HTTP.	04
	(c)	What is Network Security? Explain any one security algorithm in detail.	07

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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3161007   **Date:22-05-2024**
Subject Name: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
Q.1	**(a)**	List out types of addresses used in TCP/IP model with one example.	03
	(b)	Classify transmission media. Explain any one guided transmission media.	04
	(c)	List out and explain various network topologies.	07
Q.2	**(a)**	Compare Connection oriented vs. Connection less service.	03
	(b)	Explain LAN in detail.	04
	(c)	Draw and explain ISO OSI reference model.	07
		OR	
	(c)	Explain Cyclic Redundancy Check (CRC) in detail with an example.	07
Q.3	**(a)**	Compare Go Back N ARQ vs. Selective Repeat ARQ	03
	(b)	Compare Circuit switching vs. Packet switching.	04
	(c)	What is Framing? List out and explain various framing techniques.	07
		OR	
Q.3	**(a)**	Compare Error detection vs. Error correction.	03
	(b)	Explain Sliding window protocol with an example.	04
	(c)	What is Automatic Repeat Request (ARQ)? Explain Stop and Wait ARQ in detail with an example.	07
Q.4	**(a)**	Discuss issues of channel allocation. Explain the static and dynamic channel allocation scheme.	03
	(b)	Explain Subnetting and Flooding.	04
	(c)	Explain Pure ALOHA and Slotted ALOHA.	07
		OR	
Q.4	**(a)**	What is IP address? List out and explain classes of IP address.	03
	(b)	Explain functioning of Hub, Switch, Bridge and Router.	04
	(c)	Write a note on Ethernet Technology.	07
Q.5	**(a)**	What is Cryptography? List out various ciphers.	03
	(b)	Compare TCP vs. UDP.	04
	(c)	What is Routing? Explain any one routing protocol in detail.	07
		OR	
Q.5	**(a)**	Explain HTTP communication with an example.	03
	(b)	Explain RSA algorithm.	04
	(c)	Write a note on Domain Name System (DNS).	07

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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2023

Subject Code:3161007   **Date:12-07-2023**
Subject Name: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.

Q.1	**(a)**	Explain Local Area Network (LAN).	03
	(b)	Discuss Error Detection and Error Correction.	04
	(c)	Draw and explain ISO OSI reference model.	07
Q.2	**(a)**	Draw and explain data delivery from Hop to Hop, Source host to Destination host, and Process to Process.	03
	(b)	Define: Connection-Less Service, Connection-Oriented Service, Acknowledged Service and Unacknowledged Service.	04
	(c)	Write a note on Transmission Media.	07
		OR	
	(c)	Draw and explain various network topologies with examples.	07
Q.3	**(a)**	Explain Flow Control and Error Control.	03
	(b)	Compare Circuit Switching vs. Packet Switching	04
	(c)	Write a note on HDLC protocol.	07
		OR	
Q.3	**(a)**	Explain bit stuffing.	03
	(b)	What is ARQ? Compare link layer ARQ protocols.	04
	(c)	Classify multiple Access Protocols. Explain Pure ALOHA and Slotted ALOHA with necessary diagrams.	07
Q.4	**(a)**	Explain Cyclic Redundancy Check (CRC) with example.	03
	(b)	Draw and explain IPV4 header.	04
	(c)	Explain CSMA/CA protocol with necessary diagrams.	07
		OR	
Q.4	**(a)**	Explain Classful IP addressing scheme.	03
	(b)	Compare TCP vs. UDP.	04
	(c)	Explain Bluetooth Technology.	07
Q.5	**(a)**	What is Network Address Translation (NAT)? Justify the need for NAT.	03
	(b)	Draw and Explain TCP Header.	04
	(c)	Write a note on Domain Name System (DNS).	07
		OR	
Q.5	**(a)**	What is Cryptography? List out various Ciphers. Explain any one in detail.	03
	(b)	Explain Shortest Path Algorithm.	04
	(c)	What is congestion and congestion control? Why it is required? List out and explain various policies used for the congestion control.	07

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2022

Subject Code:3161007   **Date:08/06/2022**
Subject Name: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
Q.1	**(a)**	Explain the terms: LAN, MAN, WAN.	**03**
	(b)	Explain following terms: 1) Repeater 3) Bridges 2) Router 4) Gateway	**04**
	(c)	With diagram explain OSI reference model. Write down various tasks performed by each layer in model.	**07**
Q.2	**(a)**	Give comparison between packet switching and circuit switching.	**03**
	(b)	What is the physical layer in OSI model responsible for? Which protocol is used in physical layer.	**04**
	(c)	Explain HLDC protocol with modes of operation, and frame format.	**07**
		OR	
	(c)	Write note on sliding window protocol.	**07**
Q.3	**(a)**	Give comparison between CSMA/CA and CSMA/CD	**03**
	(b)	Explain the concept of piggybacking.	**04**
	(c)	What is framing? List all methods used for framing and discuss any two methods used for framing.	**07**
		OR	
Q.3	**(a)**	Justify that how slotted ALOHA is better than pure ALOHA.	**03**
	(b)	Explain the Go Back N protocol.	**04**
	(c)	What is sliding window protocols? For what purpose this protocol is used? What are the advantages of sliding window protocol?	**07**
Q.4	**(a)**	How Bluetooth works? Explain Bluetooth architecture.	**03**
	(b)	Give differences between Frame, Packet and TPDU. How encapsulation is done?	**04**
	(c)	What is the role of routing algorithms at network layer? Explain Distance vector routing algorithm in detail.	**07**
		OR	
Q.4	**(a)**	Give comparison between X.25 network and Frame relay.	**03**
	(b)	What is the need of IP address? What is classful and classless IP address?	**04**
	(c)	Explain IPv4 header fields with necessary diagrams.	**07**
Q.5	**(a)**	Give comparison between TCP and UDP.	**03**
	(b)	Give comparison between 1-persistent and P-persistent CSMA.	**04**
	(c)	Write short note on POP3 and SMTP.	**07**

Q.5 **(a)** What is flooding? Give its advantages and applications? **03**

(b) What is the function of following protocols? **04**
    1) ICMP   3) DHCP
    2) ARP   4) BOOTP

(c) Explain Domain Naming System functioning for Internet. **07**

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