

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2024****Subject Code:3150710****Date:02-12-2024****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.

		<b>Marks</b>
<b>Q.1</b>	(a) Define the Following Terms: 1 Local area network 2.Throughput 3.Repeater	<b>03</b>
	(b) Explain various types of delay occur in transmission.	<b>04</b>
	(c) List down different types of topology and explain any three topologies with advantages and disadvantages.	<b>07</b>
<b>Q.2</b>	(a) Write a short note on DNS and its resolution techniques.	<b>03</b>
	(b) Differentiate Circuit Switching and Packet Switching	<b>04</b>
	(c) Define HTTP and compare its persistent and non-persistent types with request-response behavior.	<b>07</b>
<b>OR</b>		
	(c) Explain SMTP protocol in details.	<b>07</b>
<b>Q.3</b>	(a) List down various services provided at transport layer	<b>03</b>
	(b) Provide the Port number and Transport layer Protocol associated with the following Application Layer Services: 1. Telnet 2. SMTP 3. HTTP 4.DNS	<b>04</b>
	(c) Explain TCP Congestion control in detail	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) How the encapsulation is done in the transport layer?	<b>03</b>
	(b) Explain flow control and Error Control.	<b>04</b>
	(c) Write short note on User datagram protocol.	<b>07</b>
<b>Q.4</b>	(a) Enlist IP address range and subnet mask value for class A, B and C. How many hosts can be connected for the 188.21.0.0 network?	<b>03</b>
	(b) Compare virtual circuit networks and datagram networks	<b>04</b>
	(c) Describe Go Back N and Selective Repeat protocol.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Differentiate connection oriented and connection less services.	<b>03</b>
	(b) Explain the following system calls. (i) socket () (ii) bind ()	<b>04</b>
	(c) Draw and Explain IPv4 Datagram header fields.	<b>07</b>
<b>Q.5</b>	(a) Describe the distinctions between multicasting and multiple unicasting within network communication.	<b>03</b>
	(b) A CRC 100110001 is received by the receiver. The divisor value is 1101. Show that error is detected at the receiver side.	<b>04</b>
	(c) Define the term random access protocols? Explain slotted ALOHA in brief.	<b>07</b>

**OR**

- Q.5**
- (a) An ISP is providing 150.80.0.0/16 block to 2600 customers. What will be the assigned IP address 1002th customers if it provided in the sequence by that ISP. **03**
  - (b) Explain bit stuffing with an example. **04**
  - (c) Explain importance of TCP segment structure and its fields. **07**

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