

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3161007****Date:11-12-2023****Subject Name:Computer Networks****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
<b>Q.1</b>	(a) Define protocol and interface.	<b>03</b>
	(b) List two ways in which OSI reference model and TCP/IP reference model are the same.	<b>04</b>
	(c) Explain various network topologies in details.	<b>07</b>
<b>Q.2</b>	(a) What are two reasons for using layered protocols?	<b>03</b>
	(b) Which of the OSI layers handles each of following: 1.Dividing the transmitted bit stream into frames. 2.Determinig which route through the subnet to use.	<b>04</b>
	(c) What is hamming distance? Explain its role in error detection and error correction using an example.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(c) Explain stop and wait protocol.	<b>07</b>
	(a) Differentiate between message switching and packet switching.	<b>03</b>
	(b) Give the usage of I, S, U frames of HDLC frames.	<b>04</b>
	(c) Draw and explain the flow chart/algorithm to calculate a traditional checksum.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Write down the functions of MAC layer.	<b>03</b>
	(b) Compare Pure ALOHA and Slotted ALOHA.	<b>04</b>
	(c) Differentiate between FDMA, TDMA and CDMA.	<b>07</b>
<b>Q.4</b>	(a) What is the difference between unicast, multicast and broadcast addresses?	<b>03</b>
	(b) Write down features & characteristic of ZigBee.	<b>04</b>
	(c) Discuss the fields of Ethernet frames in brief.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Give an argument why the leaky bucket algorithm should allow just one packet per tick, independent of how large the packet is.	<b>03</b>
	(b) Write down Optimality principle. Explain it with the help of an example.	<b>04</b>
	(c) Compare: Datagram and virtual circuit subnets.	<b>07</b>
<b>Q.5</b>	(a) List down drawbacks of Wi-Fi.	<b>03</b>
	(b) Explain the function of following protocol in brief: ICMP, RARP, DHCP, BOOTP	<b>04</b>
	(c) How to do congestion control in Virtual circuit subnets, explain with the help of an example?	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) What is the function of Domain name services (DNS)?	<b>03</b>
	(b) What is fire wall? Explain its working in detail.	<b>04</b>
	(c) Explain Hypertext transfer protocol (HTTP) in detail.	<b>07</b>

\*\*\*\*\*