Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII EXAMINATION – SUMMER 2016

Subject Code:181101 **Date:07/05/2016**

Subject Name:Data Communication and Networking (Department Elective - II)

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.**

Q.1	**(a)**	1. Explain how TCP/IP and OSI Reference Model are different with each other. 2. Explain various network topologies with their advantages and disadvantages.	**07**
	(b)	Imagine the length of a 10Base-5 cable is 2500 meters. If the speed of propagation in a thick co-axial cable is 60% of the speed of light, how long does it take for a bit to travel from the beginning to the end of the cable? Ignore any propagation delay in the equipment. (Speed of light = 3 x 10^8 meters / sec)	**07**
Q.2	**(a)**	Give the Classification of network in detail according to the area covered. Also explain each classification of network in detail.	**07**
	(b)	1. What does 'negotiation' mean when discussing networking protocols? Give an example. 2. Give the main difference between TCP and UDP.	**07**
		OR	
	(b)	Give comparison among circuit switching, packet switching and message switching.	**07**
Q.3	**(a)**	The following character encoding is used in data link protocol: A : 01000111 ; B : 11100011 ; FLAG : 01111110 ; ESC : 11100000 Show the it sequence transmitted (in binary) for four character frame : A B ESC FLAG when each of the following framing methods are used : 1. Flag bytes with byte stuffing. 2. Starting and ending flag bytes, with bit stuffing.	**07**
	(b)	What is piggybacking? Explain its advantage using an example.	**07**
		OR	
Q.3	**(a)**	Explain sliding window protocol of size 1, with a 3- bit sequence at sender and receiver side.	**07**
	(b)	What is the major difference between error detecting and error correcting codes? Show how Hamming code is used to correct burst errors.	**07**
Q.4	**(a)**	Explain the channel allocation problem and its solution in detail.	**07**
	(b)	Write short note on Bluetooth.	**07**
		OR	
Q.4	**(a)**	Explain hidden station problem and exposed station problem in wireless LAN.	**07**
	(b)	Write short note on Fast Ethernet.	**07**
Q.5	**(a)**	What is congestion? Write congestion prevention policies for network and transport layers.	**07**
	(b)	Write techniques to achieve good QOS. Explain leaky bucket algorithm.	**07**
		OR	
Q.5	**(a)**	Write short note on DNS.	**07**
	(b)	Discuss the social issues connected with network security.	**07**

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