Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV • EXAMINATION – SUMMER 2013

Subject Code: 141601 **Date: 07-06-2013**

Subject Name: Data Communication and Networking

Time: 10:30am – 01:00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4.

Q.1	**(a)**	i)	Define the terms : data communication, protocol, network	**03**
		iii)	Compare and contrast radio wave and micro wave transmission media.	**04**
	(b)	i)	Define the terms: signal, bandwidth, attenuation	**03**
		ii)	Compare and contrast a circuit-switched network and a packet-switched network.	**04**
Q.2	**(a)**	i)	Define the term: Shannon capacity. What does the Shannon capacity have to do with communication?	**03**
		ii)	What is PCM? Explain it in detail.	**04**
	(b)		Draw the layered architecture of OSI model and explain the functions of each layer.	**07**
			OR	
	(b)		Draw the layered architecture of TCP/IP model. List and explain the function of different protocol for each layer.	**07**
Q.3	**(a)**		What is CRC? Explain it with example.	**07**
	(b)		List different techniques for digital-to-analog conversion. Explain any two in detail.	**07**
			OR	
Q.3	**(a)**		What is hamming distance? Explain hamming code method of error correction with example.	**07**
	(b)		What is multiplexing? List the multiplexing techniques. Explain any one in detail.	**07**
Q.4	**(a)**		What is Ethernet? Explain Standard Ethernet layers in detail.	**07**
	(b)		What is the role of routing algorithm in internetworking? Explain distance vector routing in detail.	**07**
			OR	
Q.4	**(a)**		Write short note on the following : Token Bus, FDDI	**07**
	(b)		List and explain different types of connecting devices in detail.	**07**
Q.5	**(a)**		What is line coding? Categories different line coding schemes. Explain any two in detail.	**07**
	(b)		What is topology? Explain different types of network topologies.	**07**
			OR	
Q.5	**(a)**		Explain the different ways of analog- to- analog conversion	**07**
	(b)		Briefly explain the following: LAN, MAN,WAN and Internet	**07**

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