Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII • EXAMINATION – SUMMER 2014

Subject Code: 181101 **Date: 03-06-2014**

Subject Name: Data Communication and Networking

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)**	What is network topology? Explain different network topologies with example and compare them.	**07**
	(b)	(I) Which of the OSI layers handles each of the following : - Determine which route through the subnet to use. - Dividing the transmitted bit stream into frames. - Encryption and compression of the information. - Flow control between source and destination node.	**04**
		(II) Compare Packet Switching and Circuit Switching.	**03**
Q.2	**(a)**	Explain ATM Reference Model in detail.	**07**
	(b)	(I) Explain the terms : LAN , MAN ,WAN , Internet .	**04**
		(II) Compare X.25 and Frame Relay.	**03**
		OR	
	(b)	(I) Explain cyclic redundancy check in detail.	**04**
		(II) Compare FDM,WDM and TDM.	**03**
Q.3	**(a)**	Write the functions of Media Access Control sub layer. And Compare pure ALOHA and slotted ALOHA.	**07**
	(b)	Explain Sliding window protocol using GO back to N.	**07**
		OR	
Q.3	**(a)**	Differentiate between the following (I) Active hub, Passive hub and Repeater. (II) Router and Gateways.	**07**
	(b)	Why CSMA/CA is used for wireless network? Explain it.	**07**
Q.4	**(a)**	Explain and compare distance vector routing and link state routing algorithm.	**07**
	(b)	List the various duties of the transport layer and explain each in brief. Compare UDP and TCP	**07**
		OR	
Q.4	**(a)**	Write about elements of transport layer (1) connection establishment (2) connection release	**07**
	(b)	Draw IPV4 header format and explain the each field of the header. Also explain the concept of fragmentation in detail.	**07**
Q.5	**(a)**	Explain DNS in detail with example.	**07**
	(b)	Answer the following questions. (I) RSA algorithm. (II) Transposition cipher.	**04+03**
		OR	
Q.5	**(a)**	Answer the following questions. (I) FTP (II) HTTP	**04+03**
	(b)	Explain the e-mail architecture and services. Write short note on POP3 and SMTP.	**07**

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