Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA Semester IV Examination Summer-2016

Subject code: 640001 **Date: 25/05/2016**

Subject Name: Fundamentals of Networking

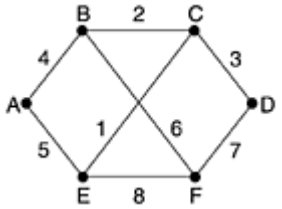
Time: 10:30 a.m. - 1:00 p.m. **Total Marks: 70**

Instructions:

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

Q.1	**(a)**		Answer the following questions.	**14**
		1.	Give an example of Simplex, half duplex and Full-duplex communication.	
		2.	State the significance of Age field in Link State Packet Algorithm.	
		3.	What is Baud rate and Bit rate for the standard 20 Mbps Ethernet?	
		4.	Differentiate between Broadcasting and Flooding.	
		5.	What is need for DNS in internet?	
		6.	Data Link Protocol almost put CRC in a trailer rather than in a header. Why?	
		7.	Give name of two methods for releasing the connection with example.	
		8.	What are the different forms of e-commerce? Give one example for each.	
		9.	What is meaning of 1 in 1-Persistent CSMA?	
		10.	What is Onetime pad in Cryptography?	
		11.	What is importance of CTS in Wireless transmission?	
		12.	What is main difference between TCP and UDP?	
		13.	What is Soft and Hard handoff?	
		14.	Differentiate between Hub and Switch.	
Q.2	**(a)**	1.	What is difference between Broadcast and Point-to-Point Network?	**02**
		2.	What is CSMA/CD? Explain working of it.	**03**
		3.	Differentiate between OSI and TCP/IP Reference Model.	**02**
	(b)	1.	Explain Binary Exponential Back off algorithm.	**03**
		2.	Explain MACA protocol.	**04**
			OR	
	(b)	1.	Explain Inter Frame Spacing of 802.11 MAC Layer.	**03**
		2.	Write a short note on 802.16 Protocol Stack.	**04**
Q.3	**(a)**	1.	Explain Two-way army problem of connection release in Transport layer.	**04**
		2.	Explain Selective Repeat Protocol in detail.	**03**
	(b)	1.	What are Resource Records? Explain any three DNS Resource Records types.	**04**
		2.	What is Hamming distance? What is Hamming distance for the codes 1111100000 1111111111 0000011111 and 0000000000 ? Is this Hamming distance can correct double errors?	**03**
			OR	
Q.3	**(a)**	1.	Illustrate the four scenarios of releasing connection at Transport Layer using Three-way handshake.	**04**
		2.	What are limitations of POP3? How does IMAP differ from POP3?	**03**

	(b)	1.	Sixteen bit message is transmitted using Hamming Code. How many check bits are needed to ensure that receiver can detect and correct single bit errors? Show the bit pattern transmitted for the message 1101001100110101. Assume even parity is used in Hamming Code.	**04**
		2.	Explain Byte Stuffing with example.	**03**
Q.4	**(a)**	1.	Write short note on : Cable Modems	**04**
		2.	Explain working of Active Repeater and Passive Interfaces?	**03**
	(b)	1.	Consider the following subnet.	**05**



Distance Vector Routing is used and following delay vectors have just come in to router C - from B:(5,0,8,12,6,2), from D: (16,12,6,0,9,10) and from E: (7,6,3,9,0,4). The measured delays to B, D and E are 6, 3 and 5 respectively. What is C's new Routing table? Give both outgoing line to use and expected delay.

		2.	What is Attenuation, Chromatic dispersion, Distortion and Noise?	**02**

OR

Q.4	**(a)**	1.	Explain Link State Routing Algorithm.	**04**
		2.	Differentiate between Single mode and Multimode Fiber.	**03**
	(b)	1.	Discuss GSM Technology used in Cellular Phones.	**04**
		2.	Write a short note on ADSL Technology.	**03**
Q.5	**(a)**	1.	What is Congestion? Explain Congestion Control in Datagram Subnet.	**04**
		2.	Explain Cipher Block Chaining mode with example. What is advantage of it?	**03**
	(b)	1.	For the following Plaintext, Apply Caesar Cipher with Key=2 and Transposition Cipher with Key="great" and Find the Resulting Cipher text. Plaintext: fundamentalsofnetworkings	**05**
		2.	What is Jitter Control? Why is it more useful in Multimedia transmission?	**02**

OR

Q.5	**(a)**	1.	Explain working of P-Box and S-Box.	**04**
		2	What is Congestion? How is Congestion controlled in Virtual Circuit Subnet?	**03**
	(b)	1.	Explain RSA Algorithm with example.	**04**
		2.	Explain role of Foreign Agent and Home Agent in Mobile Routing.	**03**

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