Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2161103 **Date: 03/05/2017**

Subject Name: Telecommunication Switching systems and Networks

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.**

			MARKS
Q.1		**Short Questions**	**14**
	1	Network with point-to-point link is known as (A) Fully Connected Network (B) Half Connected Network (C) Duplex Connected Network (D) None of these	
	2	In a time multiplexed space switching system, one speech sample appears every (A) 125 μ sec (B) 20 msec (C) 120 msec (D) 1 sec	
	3	In a LAN network every system is identified by (A) Name (B) MAC address (C) IP Address (D) Serial number	
	4	For two stage network the switching elements for M inlets with r blocks and N outlets with s blocks is given by (A) Ms + Nr (B) Mr + Ns (C) (M + N) (r + s) (D) (M + N) rs	
	5	Telephone Traffic intensity is measured in (A) Seconds. (B) Hours. (C) Erlang (D) All of these	
	6	One Erlang is equal to (A) 36 CCS (B) 60 CCS (C) 360 CCS (D) None	
	7	In ISDN network Reference point used between NT1 and NT2 is (A) R (B) T (C) U (D) None	
	8	CRC at Data Link Layer is not capable of correcting error. (A) True (B) False	
	9	The larger the Grade Of Service, the worse is the service given (A) TRUE (B) FALSE	
	10	A two stage non-blocking network requires twice the number of switching elements as the single stage non-blocking network. (A) TRUE (B) FALSE	
	11	If 10 users are present in a network with point-to-point links, then how many links will be required in the network?.	
	12	What is the full form of HDLC	
	13	Define Busy Hour Call Attempts (BHCA)	
	14	Define Grade of Services (GOS)	
Q.2	**(a)**	Explain ISDN Address structure with significance and size of each field.	**03**
	(b)	Give classification of Switching systems.	**04**
	(c)	Explain different Network Topology.	**07**
		OR	
	(c)	Explain Lost calls cleared (LCC) system with infinite sources and derive the equation of Blocking probably.	**07**

Q.3	**(a)**	Explain Synchronous duplex mode of Dual processor with necessary diagram.	**03**
	(b)	Draw any four Signaling tones in automatic exchange. Also mention it's frequency.	**04**
	(c)	Draw the block diagram of two stage network with multiple switching matrices in each stage and explain it. Also derive equations of switching elements required, switching capacity and Blocking probability	**07**

OR

Q.3	**(a)**	Explain Standby mode of Dual processor with necessary diagram	**03**
	(b)	Compare micro-programmed control and hard wired control.	**04**
	(c)	Explain basic Time division time switching in detail with necessary diagram.	**07**
Q.4	**(a)**	Explain Bit stuffing related to data Link Layer	**03**
	(b)	Explain BRI and PRI in detail.	**04**
	(c)	Explain ISDN Functional grouping and Reference points in detail.	**07**

OR

Q.4	**(a)**	Explain Byte stuffing related to Data Link layer.	**03**
	(b)	Explain ISDN Channels. What is significance and maximum data rate supported by each ISDN channel?	**04**
	(c)	Compare In-channel and Common channel signaling. Also explain Associated signaling with necessary diagram.	**07**
Q.5	**(a)**	A subscriber makes three phone calls of 3 minutes, 4 minutes and 2 minutes duration in a one hour period. Calculate the subscriber traffic in erlangs, CCS and CM.	**03**
	(b)	Explain Input controlled time division space switching with necessary diagram	**04**
	(c)	Explain ISO-OSI reference model with functionality of each layer.	**07**

OR

Q.5	**(a)**	A group of 20 servers carry a traffic of 10 erlangs. If average duration of a call is 3 minutes then calculate number of calls put through by a single server and group as a whole in one hour period.	**03**
	(b)	Explain output controlled time division space switching with necessary diagram	**04**
	(c)	Explain pure ALOHA in detail and derive the equation of Throughput.	**07**

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