Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2021

Subject Code:3173212 Date:10/12/2021

Subject Name:Telecommunication Engineering

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Compare single stage and multi stage networks.	**03**
	(b)	Discuss operations of load sharing mode of stored program control.	**04**
	(c)	Explain centralized SPC and also explain the drawback of it.	**07**
Q.2	**(a)**	An exchange serves 4000 subscribers. If the average BHCA is 24000 and the CCR is 50%, calculate the busy hour calling rate.	**03**
	(b)	Discuss operations of synchronous duplex mode of stored program control.	**04**
	(c)	Explain level 1 processing and level 2 processing of distributed SPC in detail.	**07**
		OR	
	(c)	Explain Numbering plan for Telecommunication in detail.	**07**
Q.3	**(a)**	Calculate the number of trunks that can be supported on a time multiplexed space switch, given that: (1) 64 channels are multiplexed in each stream ; (2) Control memory access time is 50 ns ; (3) Bus switching and transfer time is 50 ns per transfer.	**03**
	(b)	Discuss operations of standby mode of stored program control.	**04**
	(c)	List charging plans for Telecommunication and discuss any two.	**07**
		OR	
Q.3	**(a)**	A group of 40 servers carry a traffic of 20 Erlangs. If the average duration of a call is five minutes, calculate the number of calls put through by a single server and the group as a whole in a one hour period.	**03**
	(b)	Explain input controlled time division space switch.	**04**
	(c)	Explain the N X N three stage switching network. Draw the Lee's graph to discuss its blocking probability.	**07**
Q.4	**(a)**	A subscribe makes three phone calls of three minutes, four minutes and two minutes duration in a one hour period. Calculate the subscriber traffic in Erlangs, CCS and CM.	**03**
	(b)	Define: Erlang, CCR , BHCA, Grade of service.	**04**
	(c)	Draw and Explain the basic scheme for common channel signaling.	**07**
		OR	
Q.4	**(a)**	Describe Right-through routing.	**03**
	(b)	Explain subscriber loop system.	**04**
	(c)	Discuss the architecture of signaling system No.7 (SS7).	**07**

Q.5	**(a)**	Discuss circuit switching in brief.	**03**
	(b)	Explain three-party conferencing connection.	**04**
	(c)	Describe fiber optic networks in detail.	**07**
		OR	
Q.5	**(a)**	Discuss packet switching in brief.	**03**
	(b)	Compare in band and out band Signaling.	**04**
	(c)	Describe satellite based data networks in detail.	**07**

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