Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

Subject Code: 2161009Date: 26/10/2016Subject Name: Telecommunication Switching and ApplicationsTime: 02:30 PM to 05:00 PMInstructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- Q.1 (a) How to reduce the echo in telecommunication network. Explain by proper 07 diagram; Also explain point to point communication. A fully connected network supports full duplex communication using unidirectional links. Show that the total number of links in such a network with n nodes, is given by $2^*({}^{n}C_2)$.
 - (b) Discuss about local Battery exchanges and Central battery exchanges. A channel interfaces in a point to point communication system, attenuate the signal by 3 dB each. The channel has a loss of 30 dB. If the received signal is to be amplified such that the overall loss is limited to 20 dB, estimate the amplifier gain.
- Q.2 (a) Discuss briefly about various modes of centralized space division switching. 07
 - (b) Explain briefly about various levels processing in distributed space division 07 switching.

OR

- (b) Define the steps to activate and cancel Abbreviate dialing and call forwarding 07 facilities in telephone and explain ping pong effect in call forwarding.
- Q.3 (a) Compare the number of switching elements required in 2 stage and 3 stage 07 Space Division Network, also compare their blocking probabilities.
 - (b) Explain Time Multiplexed Time Switching with proper example.

OR

- Q.3 (a) 07
 Explain briefly about 3 stage non-blocking configuration.
 A three stage switching structure supports 128 inlets and 128 outlets. It is proposed to use 16 first stage and third stage matrices.
 What is the number of switching elements in the network, if it is nonblocking?
 (b) A three stage network is designed with following parameters :- 07
 - (b) A three stage network is designed with following parameters :-M=N=512, p=q=16 and $\alpha = 0.7$. Calculate the blocking probability of the network if (a) s=16 (b) s=24 and (c) s=31 using the lee's equation.
- Q.4 (a) Derive the Steady state equation for birth-death process in telecommunication 07 network.With Poisson arrival of 2 calls per minute, what is the probability that three calls will arrive in 2 minutes.
 - (b) State the difference between call blocking probability and Grade of service 07 (Gos).State the difference between various units of traffic intensity measurements.
 A subscriber makes three phone calls of 3 minutes, 4 minutes and 2 minutes in duration in a one hour period. Calculate the subscriber traffic in erlangs, CCS and CM.

07

Q.4	2.4 (a) State various modes of communication and explain any one communication in brief.		
Q.5	(b) (a) (b)	Explain in brief Integrated Service Digital Network [ISDN]. Discuss various types of topology in Local Area Network [LAN]. Discuss briefly about Common channel signaling.	07 07 07
		OR	

OR

Q.5	(a)	Explain the functionality of r	etwork and transport layer in ISO-OSI layer.	07
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(b) Discuss about Switching Hierarchy and Routing in telecommunication. 07
