Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII • EXAMINATION – SUMMER 2014

Subject Code: 181201 **Date: 05-06-2014**

Subject Name: Telecommunication Transmission and Switching

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) Explain following terms: (Attempt any 7) **07**

1. Transit exchange
2. Junctor circuit
3. Direct control switching system
4. Side tone
5. Traffic intensity
6. Routing tone
7. Centum call second
8. Abbreviated dialing

(b) Explain basic elements of a switching system. **07**

Q.2 (a) Design Telephone exchange for Strowger switching system for No. of subscriber 100 & two motion selector switch is used. **07**

(b) Explain Rotary dial telephone system. Also mention the disadvantage over the crossbar switching system. **07**

OR

(b) Describe how a uniselector can be used as a selector hunter or line finder. **07**

Q.3 (a) Explain different mode of centralized SPC. **07**

(b) A 3-stage N/W is designed with following parameters: **07**
M=N=512, p=q=16, & α=0.7
Calculate the blocking probability of the N/W. If a) s=24, b) s=16, & c) s=31.
Also find the blocking probability for the 2-stage N/W.

OR

Q.3 (a) Explain 3-stage nonblocking configuration for Electronic Space Divison Switching system. **07**

(b) Calculate the maximum access time that can be permitted for the data & control memories in a TSI switch with a single input & output trunk multiplexing 2500 channels. Also estimate the cost of the switch & compare it with that of a single space division switch. **07**

Q.4 (a) Consider a B-D process with co-efficient **07**

$\lambda_k(0)= \lambda$ for k=0
0 for k≠0
$\mu_k(0)= \mu$ for k=0
0 for k≠0

Give differential –difference equations for $P_0(t)$ & $P_1(t)$.
Solve these equations and express the answer in terms of $P_0(t)$ & $P_1(t)$.

(b) During a 2-hr busy period, 2400 calls arrive at an exchange. Average holding time per call is 2 min. what is a traffic load in: A) In Earlang and B) in CCS & CM. **07**

OR

Q. 4 (a) Explain different signaling techniques in telecommunication N/W. **07**

(b) Explain B-D process & derive model for steady state switching system. **07**

Q.5 (a) Explain Lost Calls Cleared system with infinite sources. Also draw LCC model where the traffic arrived is characterized by Poisson process. **07**

(b) Explain 3-stage combination switching network in Time Division Switching system. **07**

OR

Q.5 (a) Explain LCR (Lost Call Returned) system in traffic engineering model. **07**

(b) Explain ISDN protocol architecture. **07**

****