Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-II Examination July 2010

Subject code: 720401

Subject Name: Telecom Switching System, Networks and Networks Management

Date: 05 /07 /2010 **Time: 11.00am – 1.30pm**

Total Marks: 60

Instructions:

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

Q.1 **(a)** Derive blocking probability of three stage space network using lee's graph. **06**

(b) A three stage switching structure supports 128 inlets and 128 outlets. It is proposed to use 16 first and third stage matrices. At peak periods, the occupancy rate of an inlet is 10%. If the number of switching elements required for nonblocking operation is reduced by a factor of 3, what is the blocking probability of the network? **06**

Q.2 **(a)** In a TS switch, M=128, N=16 and the number of subscribers connected to the system is 0.1MN. Determine the blocking probability of the switch if (a) all the subscribers are active at the same time (b) only 50% of the subscribers are active simultaneously. **06**

(b) Calculate the access time of the memory modules in serial-in/parallel-out configuration of time multiplexed time division time switch for overlapped and non-overlapped operation using 64 input and 64 output streams with each stream multiplexing 128 channels. **06**

OR

(b) Explain parallel-in/serial-out configuration of time multiplexed time division time switch. **06**

Q.3 **(a)** 10,000 subscribers are connected to an exchange. If the exchange is designed to achieve a call completion rate of 0.8 when the busy hour calling rate is 4.8, what is the BHCA that can be supported by the exchange? What should be the call processing time for this exchange? **06**

(b) Consider a B-D process with coefficients **06**

$\lambda_k(0)=\lambda$ for k=0 or 0 for k≠0

$\mu_k(0)=\mu$ for k=0 or 0 for k≠0

Give the differential-difference equations for $P_0(t)$ and $P_1(t)$. Solve these equations and express the answers in terms of $P_0(0)$ and $P_1(0)$.

OR

Q.3 **(a)** Derive the blocking probability of Lost Call Cleared System with Infinite Sources model of lost system. **06**

(b) Explain time slot interchange switch. **06**

Q.4 **(a)** Enlist messages of SNMPv1 and explain function of each message in detail. **06**

(b) What are the Internet MIB-II groups of SNMPv1? and briefly describe function of each group. **06**

OR

Q.4	**(a)**	Explain GetRequest and Trap protocol data unit (PDU) in detail with PDU structure.	**06**
	(b)	Explain advantages of Get-next-request over Get-request of SNMPv1 using appropriate example.	**06**
Q.5	**(a)**	What are the advantages of Remote monitoring network (RMON)?	**06**
	(b)	What is the main disadvantage of SNMPv2? Explain bilingual manager and SNMP proxy server migration schemes from SNMPv1 to SNMPv2.	**06**

OR

Q.5	**(a)**	Explain SNMPv3 architecture.	**06**
	(b)	What are the basic software tools for network management? And explain each in brief.	**06**

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