



C U SHAH UNIVERSITY
Faculty of Technology and Engineering
M.Tech- SEMESTER-II May-2015

Subject Code: 5TE02TSS1**Date:****Subject Name:** Telecom Switching System & Network**Time:****Total Marks: 70****Instructions:**

1. Make suitable assumptions whenever necessary.
2. Figures to the right indicate full marks.
3. Question one is compulsory.

SECTION 1

- | | | |
|------------|---|-----------|
| Q-1 | a) Define and explain the following terms. 1) Transit Exchange 2) Busy Hour Traffic. | 2 |
| | b) Explain Call Forwarding service. | 2 |
| | c) Define (i) Cost Capacity Index. (ii) Traffic Handling Capacity. | 2 |
| | d) Define Busy Hour Traffic. | 1 |
| Q-2 | | 14 |
| | a) Derive blocking probability of three stage space network using lee's graph. | 5 |
| | b) Explain parallel-in/serial-out configuration of time multiplexed time division time switch. | 5 |
| | c) Explain TCP/IP-based networks. | 4 |
| OR | | |
| Q-2 | | 14 |
| | a) Explain Lost calls cleared system with infinite sources. | 5 |
| | b) Explain in detail Synchronous Duplex Mode. | 5 |
| | c) Draw the logical interconnection block diagram for the different elements of a switching system. | 4 |
| Q-3 | | 14 |
| | a) Explain in detail Classification of Switching System. | 5 |
| | b) Compare time division space switch and time division time switch. | 5 |
| | c) Write short note on combination switching. | 4 |
| OR | | |
| Q-3 | | 14 |
| | a) Explain in detail parallel-in/parallel-out switch with configuration and contents of control memory locations. | 5 |
| | b) Explain time slot interchange switch. | 5 |
| | c) Explain firewalls for network protection. | 4 |

SECTION 2

- | | | |
|------------|---|-----------|
| Q-4 | a) Define Birth-death processes. | 2 |
| | b) Define cryptography. | 2 |
| | c) Enlist the basic tools used in network management. | 2 |
| | d) Define BHCA. | 1 |
| Q-5 | | 14 |
| | a) An exchange serves 2000 subscribers. If the average BHCA is 10,000 and the CCR is 60%, calculate the busy hour calling rate. | 5 |
| | b) Write short note on web based management. | 5 |
| | c) Calculate the number of trunks that can be supported on a time multiplexed space | 4 |

switch, given that

- (a) 32 channels are multiplexed in each stream.
- (b) Control memory access time is 100ns
- (c) Bus switching and transfer time is 100 ns per transfer.

OR

Q-5

14

- a) A group of 20 servers carry a traffic of 10 Erlangs. If the average duration of a call is three minutes. Calculate the number of calls put through by a single server and the group as a whole in a one hour traffic period . **5**
- b) Prove that unavailability of a dual processor system, $UD = 2(MTTR)^2 / (MTBF)^2$. **5**
- c) Over a 20-minute observation interval, 40 subscribers initiate calls. Total duration of the calls is 4800 seconds. Calculate the load offered to the network by the subscribers and the average subscriber traffic. **4**

Q-6

14

- a) What are the advantages of Remote monitoring network (RMON)? **5**
- b) Explain three-tier organization model and information model in brief. **5**
- c) Give comparison of SNMP V1 and SNMP V2. **4**

OR

Q-6

14

- a) Enlist messages of SNMPv1 and explain function of each message in detail. **5**
- b) Explain advantage of Network Management. **5**
- c) What is the main disadvantage of SNMPv2? What are the two schemes for migration from SNMPV1 to SNMPV2? Explain any one in detail. **4**
