Total No. of Questions : 12]

SEAT No. :

**P1744**

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# [4859]-99
# B. E. (E&TC)
# TELECOMMUNICATION & SWITCHING SYSTEMS
# ( 2008 Course) (Semester-II)

*Time : 3Hours]* *[Max. Marks : 100]*

***Instructions to the candidates:***

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Answer 3 questions from section 1 and 3 questions from section 2.***
3) ***Assume suitable data, if necessary.***
4) ***Figures to the right indicate full marks.***

## SECTION-I

***Q1)*** a) Explain operation of Memory controlled time division switching with a neat block diagram. **[8]**

b) Write a brief note on Digital cross connect systems and explain various functional entities. **[8]**

OR

***Q2)*** a) Explain the various modes of dual processor centralized SPC organization. **[8]**

b) Explain the concept of message switching and packet switching in a typical Store & forward switching network. **[8]**

***Q3)*** a) Define the following terms: **[10]**

i) Grade of service
ii) Call Completion Rate
iii) CCS and CM
iv) BHCA
v) Blocking Probability.

b) If sequential selection is used for the group of 5 trunks and traffic offered is 2 E, find how much traffic is carried by: **[8]**

i) The first choice trunk.
ii) The last choice trunk.

OR

***P.T.O.***

***Q4)*** a) State and explain 'Constant' and 'Exponential' Holding time Distributions. **[8]**

b) During the busy hour, on an average 30 E is offered to a group of trunks. On average, the total period during which all trunks are busy is 12 seconds and 2 calls are lost. Find the average number of calls carried by the group and average call duration. Show that the average number of calls offered to the group during the period equal to the average call duration is 30. **[10]**

***Q5)*** a) Draw and explain in channel and common channel signaling. **[8]**

b) Find the grade of service when a total of 30 E is offered to a two stage switching network with 100 incoming and outgoing trunks. The traffic is evenly distributed over the 10 outgoing routes. Also find the traffic capacity of network, if the Grade of service does not exceed 0.01. **[8]**

OR

***Q6)*** a) Design a three stage network that has 100 incoming line and 300 outgoing trucks. Also calculate the total cross points. **[8]**

b) Draw and explain Signal exchage diagram for a local call along with timing of signals exchanged. **[8]**

## SECTION-II

***Q7)*** a) Explain with block schematic, the interface between TDM transmission link and a digital switch using Elastic Store. **[8]**

b) Explain with block schematic, the connections between two autonomously timed digital switches. What are Slips? How are they controlled? **[8]**

OR

***Q8)*** a) What is pulse stuffing approach for network synchronization? Explain in brief. **[8]**

b) What is Timing Jitter? Draw and explain block schematic diagrams for measuring Timing Jitter. **[8]**

***Q9)*** a) Explain the terms : functional groups and reference points related to ISDN. **[8]**

b) Describe significance of 'B' and 'D' channels in ISDN. **[8]**

OR

***Q10)***a) Explain ISDN protocol Architecture in detail. **[8]**

b) Explain user level and network level signaling in ISDN. **[8]**

***Q11)***a) Explain and Compare Pure ALOHA with Slotted ALOHA scheme. **[8]**

b) What is Handoff? Explain the different types of Handoffs. **[10]**

OR

***Q12)***Write short note on ( any Three) **[18]**

a) Frequency Reuse Scheme.

b) Cell Sectoring.

c) Cell Splitting.

d) Enhanced Services in GSM.

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