

Total No. of Questions : 12]

SEAT No. : **P838****[4659]-97**

[Total No. of Pages : 3]

**B.E. (Electronics and Telecommunication)**  
**TELECOMMUNICATION & SWITCHING SYSTEM**  
**(2008 Course) (Semester - II)**

*Time : 3 Hours]**[Max. Marks : 100]**Instructions to the candidates:*

- 1) Answer 3 questions from Section I and 3 questions from Section II.
- 2) Answers to the two sections should be written in separate books.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Figures to the right indicate full marks.
- 5) Assume suitable data, if necessary.

**SECTION - I**

- Q1)** a) Explain the various functions of a switching system with a detailed trunking diagram and state the advantages of digital switching. [10]
- b) Explain operation of Input controlled time division space switching with a neat block diagram. [8]

OR

- Q2)** a) State and explain issues of Digital switching in an analog environment. [8]
- b) Write a brief note on two dimensional switching. Draw the block diagram for a TS Switch and explain various functional entities. [10]

- Q3)** a) Define with suitable expressions the following in case of a Queue system with a single server having FIFO discipline. [8]
- i) Probability of Delay.
  - ii) Mean length of the queue.
  - iii) Mean Delay, when there is delay.
  - iv) Mean Delay, averaged over all time.
- b) State and explain formula for the grade of Service of loss systems in tandem and ‘Erlang C’ formula. [8]

OR

**P.T.O.**

- Q4)** a) State and explain ‘Erlang Delay formula’. Explain its application to Circuit and Packet switches. [8]
- b) Explain how the End to End Blocking Probabilities in a large network are calculated with assumptions and sources of error. [8]

- Q5)** a) Define Graded Groups. Explain the procedure for designing grading to provide access to ‘N’ trunks from switches with availability ‘k’. Which is the best grading? [8]
- b) Explain the design procedure for ‘N’ by ‘N’ switch with two stages and no. of links = N. What is the total no. of cross-points required? [8]

OR

- Q6)** a) Explain in detail the sequence of operations involved in a telephone call. [8]
- b) Draw and explain block schematic diagram of CCITT signaling system No. 7. [8]

## SECTION - II

- Q7)** a) Describe in brief about different types of Jitter and explain how elastic store is used to remove the accumulated Jitter with a neat diagram. [8]
- b) Explain the need of synchronization in a network containing digital switching systems. [8]

OR

- Q8)** a) What is network synchronization and enlist the basic approaches of network synchronization. [8]
- b) Explain the methods related to flow control in Network management. [8]

- Q9)** a) Explain the data Transmission in PSTN with the help of a diagram. [8]
- b) Explain the different classes of Routing algorithms and measures to asses performance of a Routing Algorithm. [8]

OR

- Q10)a** Explain the Internetworking Structures for the repeater, bridge, router and gateway with the help of an ISO-OSI reference model. [8]
- b) Explain Numbering and Addressing in ISDN. [8]

- Q11)a** Explain the terms: [10]
- i) Micro cells and pico cells.
  - ii) Sectoring.
  - iii) Co-channel interference.
  - iv) Soft and hard hand-off.
  - v) Dualization.
- b) Explain forward link channel structure of IS-95 air interface. [8]

OR

- Q12)a** Draw block diagram for the GSM system architecture and explain various functional entities. [10]
- b) Justify whether CDMA is having better security than GSM or not. [8]