USN ☐☐☐☐☐☐☐☐☐☐   10EC82

Eighth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Digital Switching Systems

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1   a. Explain the different network structures used in communication with neat diagram. (06 Marks)
    b. Explain the principle of operation of four wire circuits with the help of a neat diagram. (08 Marks)
    c. Explain principle of frequency division multiplexing with suitable block diagram. (06 Marks)

2   a. Explain in brief different functions of a switching system. (06 Marks)
    b. Explain distribution frames in strowger exchange with neat diagram. (08 Marks)
    c. Explain basic central office linkages with suitable diagram. (06 Marks)

3   a. Define and explain the following terms:
       (i)   Traffic intensity
       (ii) Grade of service
       (iii) Busy hour
       (iv) Occupancy (06 Marks)
    b. From the basic principles of queuing systems derive the equation for finite queue capacity. (10 Marks)
    c. A group of 20 trunks provides a GOS of 0.01 when offered 12E of traffic.
       (i) How much GOS is improved if one extra trunk is added to the group?
       (ii) How much GOS deteriorate if one trunk is out of service? (04 Marks)

4   a. What is grading? Explain any two types of gradings. (06 Marks)
    b. Derive an expression for Grade of Service of a 3 stage network. (08 Marks)
    c. Derive a 3 stage network for connecting 100 incoming trunks to 100 outgoing trunks. (06 Marks)

PART – B

5   a. With a neat sketch explain the operation of a space switch. (08 Marks)
    b. Discuss the need for frame alignment in time division switching networks. (06 Marks)
    c. Explain single ended unilateral and bilateral synchronization system. (06 Marks)

6   a. Explain in brief Basic software architecture used in digital switching systems. (14 Marks)
    b. Explain in brief call models and connect sequence. (06 Marks)

7   a. Describe the various organizational interfaces of a typical DSS control office. (10 Marks)
    b. Explain with a neat diagram a strategy for improving software analysis. (10 Marks)

8   a. Briefly explain generic switch hardware architecture. (07 Marks)
    b. Briefly explain common characteristics of a DSS. (07 Marks)
    c. Explain Recovery strategy of DSS. (06 Marks)

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