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15EC654

Sixth Semester B.E. Degree Examination, June/July 2019
Digital Switching Systems

Time: 3 hrs.

Max. Marks: 80

Note: *Answer any FIVE full questions, choosing*
ONE full question from each module.

Module-1

1 a. With a neat diagram explain the working principle of four wire circuit. Also give the equations for echoes. **(10 Marks)**

   b. Explain the hierarchy of national public switched telecommunication network with neat diagram. **(06 Marks)**

OR

2 a. Explain in brief, the regulation and standards in telecommunication network. **(08 Marks)**

   b. Express the following power levels in dBm and dBw. i) 1mW ii)1W iii)2mW iv) 100mW. **(08 Marks)**

Module-2

3 a. Explain the functions of switching system. **(08 Marks)**

   b. Explain the working of distribution frame in strowger exchange. **(08 Marks)**

OR

4 a. Explain in brief : i) message switching ii) circuit switching. **(08 Marks)**

   b. Explain electronic switching along with different facilities provided. **(08 Marks)**

Module-3

5 a. Derive the Erlang's lost call formula with iterative application of recurrence relation. **(09 Marks)**

   b. A group of 20 trunks provides a grade of service of 0.01 when offered 12E of traffic. How much is the grade of service improved if 2 extra trunks are added to the group? How much does the grade of service deteriorates if one trunk is out of service? **(07 Marks)**

OR

6 a. Design a grading for connecting 20 trunks to switches having ten outlets. **(08 Marks)**

   b. Derive the expression for minimum number of cross points in a three stage network with M incoming trunks and N outgoing trunks for $(M > N)$ case. **(08 Marks)**

Module-4

7 a. Explain Time-Space-Time switch with suitable diagram. **(08 Marks)**

   b. Explain synchronization and frame alignment of PCM signals in digital exchange. **(08 Marks)**

OR

8 a. Briefly explain basic software architecture of a DSS. **(08 Marks)**

   b. With the help of features flow diagram, explain call forwarding feature. **(08 Marks)**

Module-5

9 a. Describe the various organizational interfaces of DSS central office. **(10 Marks)**

   b. Briefly explain strategy for improving software quality with diagram. **(06 Marks)**

OR

10 a. Explain generic switch hardware architecture with neat diagram. **(08 Marks)**

    b. Write short note on : i) Reliability analysis ii) Recovery strategy. **(08 Marks)**

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