



CBCS SCHEME

15EC654

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Digital Switching System

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Explain the different network structures (topologies) used in communication with neat diagram. (08 Marks)
- b. Explain the principle of operation of four wire circuits with the help of a neat diagram. (08 Marks)

OR

- 2 a. Explain principle of frequency division multiplexing with suitable block diagram. (08 Marks)
- b. Explain in brief power levels encountered in telecommunication transmission systems. (08 Marks)

Module-2

- 3 a. Explain in brief different functions of a switching system. (08 Marks)
- b. Explain in brief what do you mean by message switching and circuit switching. (08 Marks)

OR

- 4 a. With a neat diagram, explain basic call processing of incoming and outgoing calls through digital switching systems. (10 Marks)
- b. Explain the significance of distribution frames with the help of a neat diagram. (06 Marks)

Module-3

- 5 a. Define and explain the following terms :
 - i) Traffic intensity
 - ii) Grade of service
 - iii) Busy hour
 - iv) Occupancy. (06 Marks)
- b. Derive the expression for second Erlange distribution starting from the basic principles. (10 Marks)

OR

- 6 a. Starting from the Markov chain model show that the call arrivals follow a Poisson distribution. (08 Marks)
- b. A group of 20 trunks provides a GOS of 0.01 when offered 12E as traffic :
 - i) How much GOS is improved if one extra trunk is added to the group
 - ii) How much does the GOS deteriorate if one trunk is out of service? (08 Marks)

Module-4

- 7 a. With a neat sketch, explain the operation of a space switch. (08 Marks)
- b. Describe the frame alignment and synchronization networks. (08 Marks)

OR

- 8 a. Explain in brief basic software architecture used in digital switching systems. (10 Marks)
b. Explain in brief call models and connect sequence. (06 Marks)

Module-5

- 9 a. Explain in brief generic switch hardware architecture. (08 Marks)
b. Explain in brief common characteristics of a digital switching system. (08 Marks)

OR

- 10 a. Explain the organizational interfaces of a typical digital switching system central office. (10 Marks)
b. Write short notes on :
i) Reliability analysis of network control processing
ii) Recovery strategy. (06 Marks)

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