CBCS SCHEME

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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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