

# GBCS SCHEME



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15EC654

## Sixth Semester B.E. Degree Examination, Aug./Sept. 2020 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. Explain the hierarchy of a national public switched telecommunication network with the help of a neat diagram. (10 Marks)  
b. Explain the operation of four wire circuit used in the two way transmission system. (06 Marks)

OR

- 2 a. Explain different network structures in brief. (06 Marks)  
b. Explain in brief power levels encountered in telecommunication transmission system. (06 Marks)  
c. Explain the power levels in dBm and dBw. i) 1mw ii) 1w iii) 2mw iv) 100 mw. (04 Marks)

### Module-2

- 3 a. Explain in brief what do you mean by message switching and circuit switching. (04 Marks)  
b. Explain stored program control switching systems with diagram. (04 Marks)  
c. With the help of a neat diagram. Explain the intra LM call processing. (08 Marks)

OR

- 4 a. Explain in brief different functions of a switching system. (08 Marks)  
b. Explain distribution frames in stronger exchange with neat diagram. (08 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 an expression for the second erlangs distribution formula from basic principles. (10 Marks)

OR

- 6 a. What is grading? Explain different types of grading. (06 Marks)  
b. Design a 3 stage network for 100 incoming and 100 outgoing trunks. Draw the diagram and derive the expressions used. (10 Marks)

### Module-4

- 7 a. Discuss the need for frame alignment in time division switching networks. (08 Marks)  
b. Explain single ended and double ended unilateral and bilateral synchronization system. (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 common characteristics of (DSS) Digital Switching System. (08 Marks)  
b. Explain the organizational interfaces of typical DSS with neat diagram. (08 Marks)

OR

- 10 a. Explain in brief generic switch hardware architecture. (08 Marks)  
b. Explain with a neat diagram a strategy for improving software quality. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.