



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

Time: 3 hrs.

Max. Marks:100

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

PART - A

- 1 a. With a neat diagram of a four wire circuit connected to two wire circuit through a hybrid transformer and equation for line attenuation. Explain ringing and two types of echo's. (10 Marks)
- b. Explain briefly the network structures used in telecommunication network. (10 Marks)
- 2 a. Briefly explain the function of a switching system. (08 Marks)
- b. Differentiate between circuit switching and message switching. (06 Marks)
- c. With a neat block diagram, explain the different functions performed by stored program control switching system. (06 Marks)
- 3 a. Define : (i) Traffic intensity (ii) Holding time (iii) Congestion (iv) Grade of service (v) Occupancy. (05 Marks)
- b. Derive the expression for Grade Of Service (GOS) of a lost-call system having N trunks, when the offered traffic is A Erlangs. (10 Marks)
- c. A group of 20 trunks provide a GOS of 0.01 when offered 12E traffic. How much GOS is improved if, (05 Marks)
 - (i) 1 trunk is added to the group.
 - (ii) 1 trunk is out of service.
- 4 a. Explain the principle of grading with an example. (10 Marks)
- b. Design a progressive grading system connecting 30 outgoing trunks and having switches with availability of 10. Draw the grading diagram. (10 Marks)

PART - B

- 5 a. With a neat sketch, explain space and time switching. (10 Marks)
- b. Explain synchronization and frame alignment of PCM signal in digital exchange. (10 Marks)
- 6 a. With a neat diagram, explain level 1, level 2 and level 3 control of a digital switching system. (10 Marks)
- b. Write a short note on a basic call model. (10 Marks)
- 7 a. Explain the organizational interfaces of a typical digital switching system central office. (10 Marks)
- b. With a neat diagram, explain the strategy for improving software quality. (10 Marks)
- 8 a. Write a short note on digital switching system hardware architecture. (10 Marks)
- b. Write a short note on digital switching system software architecture. (10 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.