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10EC82

Eighth Semester B.E. Degree Examination, July/August 2022
Digital Switching Systems

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Explain Time division multiplexing with a suitable diagram. **(08 Marks)**
b. Explain in brief regulation and standards in a telecommunication network. **(06 Marks)**
c. With a neat diagram, explain 24-channel PCM frame format. **(06 Marks)**

2 a. Describe the functions of switching systems. **(06 Marks)**
b. Explain the working of distribution frame in stronger exchange. **(08 Marks)**
c. With a neat diagram, explain basic central office linkages. **(06 Marks)**

3 a. Define the following terms : i) Traffic Intensity ii) Grade of service iii) Busy hour iv) Pure chance traffic v) Full availability vi) Statistical equilibrium. **(06 Marks)**
b. On average one call arrives every 5 seconds, during a period of 10 seconds, what is the probability that i) No call arrive? ii) One call arrives? iii) Two calls arrive? iv) more than two calls arrive? **(06 Marks)**
c. Derive second Erlang's distributions formula. **(08 Marks)**

4 a. Design a two stage switching network for connecting 200 incoming trunks to a 200 outgoing trunks. **(06 Marks)**
b. Derive an expression for the total number of cross points for three stage network with 'N' incoming and 'N' outgoing trunks. **(08 Marks)**
c. Give the comparison of single stage and multistage networks. **(06 Marks)**

PART – B

5 a. Explain Space-Time-Space switch with neat diagram. **(06 Marks)**
b. A T-S-T network has 20 incoming and 20 outgoing PCM highway, each conveys 30 channels. The required Gas is 0.01, 0.02, 0.001 and 0.005. Find the traffic capacity of network in mode 1 and model 2. **(08 Marks)**
c. With a neat diagram, explain frame synchronization. **(06 Marks)**

6 a. Explain in brief basic software architecture used in digital switching systems clearly showing three distinct levels of control. **(14 Marks)**
b. Explain in brief call models and connect sequence. **(06 Marks)**

7 a. Explain the interfaces of digital switching central office. **(10 Marks)**
b. Describe the strategy for improving software quality with neat diagram. **(10 Marks)**

8 a. Explain in brief generic switch software architecture. **(06 Marks)**
b. Explain the common characteristics of digital switching system. **(08 Marks)**
c. Write short note on Recovery strategy. **(06 Marks)**

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