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10TE55

Fifth Semester B.E. Degree Examination, June/July 2018
Digital Switching Systems

Time: 3 hrs.

Max. Marks:100

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

PART - A

- 1 a. Explain network structures with the help of neat figures. (08 Marks)
b. An amplifier has an i/p resistance of 500Ω and a resistive load of 50Ω . When it has an r.m.s. input voltage of 100mv , the r.m.s. output current is 20mA . Find the gain in dB. Also find the gain in dBW. (04 Marks)
c. With the help of a neat diagrams, explain frequency division multiplexing. (08 Marks)
- 2 a. Explain functions of a switching system. (06 Marks)
b. With the help of figure, explain marker control of crossbar system. (08 Marks)
c. Explain MDF, IDF and TDF. (06 Marks)
- 3 a. Define: i) Busy hour ii) Traffic intensity iii) Congestion iv) Grade of service. (04 Marks)
b. A group of five trunks is offered 3E of traffic. Find:
i) The grade of service.
ii) The probability that only one trunk is busy.
iii) The probability that only one trunk is free.
iv) The probability that at least one trunk is free. (08 Marks)
c. Derive the expression starting from second Erlang distribution, arrive at Erlang's Delay formula. (08 Marks)
- 4 a. Explain types of gradings. (06 Marks)
b. Find the traffic capacity of two-group grading as shown in Fig.Q.4(b) below. If the required grade of service is 0.02. Assume $K = 10$ and $A_K = 5.1$. (06 Marks)

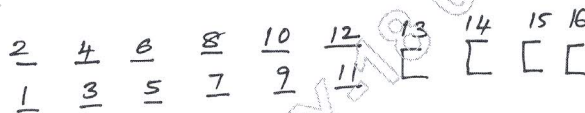


Fig.Q.4(b)

- c. Derive the equation for grade of service of two-stage network. (08 Marks)

PART - B

- 5 a. Explain space and time switches. (08 Marks)
b. Explain T-S-T switching network with a neat diagram. (06 Marks)
c. With the help of figure, explain frame alignment. (06 Marks)
- 6 a. Explain software architecture for level-3 control, level-2 control and level-1 control. (10 Marks)
b. Explain feature flow diagrams for call forward feature. (10 Marks)

1 of 2

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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.

- 7 a. Explain interfaces of a typical DSS central office with the help of block diagram. (14 Marks)
b. Explain system outage and its impact on DSS reliability. (06 Marks)
- 8 a. Explain software architecture of a generic switch with the help of figure. (10 Marks)
b. Write short notes on any two:
i) Recovery strategies
ii) Line to line inter IC call
iii) Line to trunk intra IC outgoing call. (10 Marks)

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