CBCS SCHEME

Sixth Semester B.E. Degree Examination, Jan./Feb.2021
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. With neat diagram, explain the hierarchy used in National Telecommunication Network. **(07 Marks)**
   b. Explain the principles of operation of elementary TDM system with channel pulse trains. **(05 Marks)**
   c. Express the following power levels in dBm and dBW:
       (i) 1 mW   (ii) 1 W   (iii) 2 mW   (iv) 100 mW **(04 Marks)**

OR

2 a. Draw a neat diagram of four-wire circuit and explain its working. **(07 Marks)**
   b. Explain briefly the different network structures used in Telecommunication network. **(05 Marks)**
   c. Write a short note on European Plesiochronous digital hierarchy. **(04 Marks)**

Module-2

3 a. Briefly explain message switching and circuit switching and also bring out the difference between them. **(07 Marks)**
   b. What are the different functions of switching system? Explain briefly. **(05 Marks)**
   c. Explain the cross-bar system with matrix of cross points. **(04 Marks)**

OR

4 a. With the help of neat diagram, explain the Intra LM call and Inter LM call processing. **(08 Marks)**
   b. With neat diagram, explain the function of Basic Central Office Linkages. **(05 Marks)**
   c. Write a note on Electronic switching. **(03 Marks)**

Module-3

5 a. Derive the expression for Second Erlang's distribution starting from basic principles. **(07 Marks)**
   b. Define grading. Explain different types of grading. **(04 Marks)**
   c. In an average, during the busy hour, a company makes 180 outgoing calls of average duration of 3 minutes. It receives 400 incoming calls of average duration of 6 minutes. Find
       (i) the outgoing traffic (ii) Incoming traffic (iii) Total traffic. **(05 Marks)**

OR

6 a. Design a grading for connecting 20 trunks to switches having 10 outlets. **(06 Marks)**
   b. Give the comparison between single stage and multistage networks. **(06 Marks)**
   c. Define the following : (i) Holding time (ii) Congestion (iii) GOS (iv) Busy hour. **(04 Marks)**

Module-4

7 a. With neat diagram, explain the space switch. **(06 Marks)**
b. Briefly explain the Digital Switching System software classification. **(06 Marks)**
c. A T-S-T network has 20 incoming and 20 outgoing PCM highway, each conveys 30 channels, the required GOS is 0.01 and 0.02, find the traffic capacity of the network in mode-1 and mode-2. **(04 Marks)**

OR

8 a. With neat block diagram, explain S-T-S and T-S-T switching network. **(08 Marks)**
b. With the help of feature flow diagram, explain feature activation, feature operation and feature deactivation. **(08 Marks)**

Module-5

9 a. Draw neat block diagram and explain the organizational interfaces of typical DSS central office. **(08 Marks)**
b. Explain briefly with neat block diagram the generic switch hardware architecture. **(08 Marks)**

OR

10 a. Write a short note on software maintenance. **(04 Marks)**
b. Explain the common characteristics of Digital Switching System. **(06 Marks)**
c. Write the Analysis Report of digital switching system. **(06 Marks)**

* * * * *