Code :R5320402

R5

III B.Tech II Semester(R05) Supplementary Examinations, April/May 2011
TELECOMMUNICATION SWITCHING SYSTEMS & NETWORKS
(Electronics & Communication Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Explain the principle and function of common control switching system with the help of neat block diagram.
   (b) A telephone exchange supporting 5000 subscribers uses DTMF dialling and a common control subsystem with 100 digit receivers. Each digit receiver is assigned for a duration of 5 sec per subscriber for call processing. If 20 percent of the subscribers attempt to call simultaneously , what is the worst case wait time for a subscriber before he receives the dial tone?
2. (a) What is SPC? Explain the two approaches to organize SPC.
   (b) Deadlock may occur in a road traffic junction. Illustrate this with the help of a diagram.
3. (a) A subscriber loop of 18km is to be supported from an exchange that uses a 40 V battery with a 400 Ω short-circuit protection resistance. Electronic telephones are used as the subscriber instruments. Determine the wire gauge that needs to be used.
   (b) Explain in detail about telecommunication network topologies.
4. (a) Define traffic intensity and explain different ways of measuring it.
   (b) A subscriber makes three phone calls of three minutes, four minutes and two minutes duration in a one-hour period. Calculate the subscriber traffic in erlangs, CCS and CM.
5. (a) Define data communication standards and explain why they are necessary.
   (b) Describe syntax and semantics and how they relate to data communication.
6. Explain in detail Mesh, Ring, Star and Bus network topologies in detail . What are its merits and demerits?
7. (a) Discuss four types of ISDN services for end to end communication.
   (b) Describe the frame format of LAPD with addressing format .
   (c) Explain various fields of ISDN network layer frame format.
8. Briefly explain:
   (a) STS-1 signal frame format.
   (b) Automatic Protection Switching.

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