

**B. TECH (ELECTRONICS &
COMMUNICATION ENGINEERING)**

**FIFTH SEMESTER END TERM EXAMINATION
NOVEMBER, 2010**

TELECOMMUNICATION NETWORKS

Time : 3 Hrs.

Maximum Marks : 70

Note: Attempt questions from all sections as directed.

SECTION - A (30 Marks)

Attempt any 5 questions.

Each question carries 6 marks.

1. How are switching systems classified? In what way is stored program control superior to hard-wired control? (4+2)

2. (a) What are the differences between common control and direct control? (4)

(b) Explain the terms :

→ Busy hour call attempt

→ Call completion ratio

(1+1)

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3. (a) What are the traffic engineering parameters?
(b) A group of 30 servers carry a traffic of 10E. If the average duration of a call is three minutes, calculate the number of calls put through by a single server and the group as a whole in a one-hour period. (3+3)
4. What is the need of quantization in digital communication? How quantization noise occurs in case of digital communication and how it can be minimized? (4+2)
5. What are the advantages of digital communication over analog communication?
6. What is line coding? Draw the waveforms for the given code 10111010001 according to given schemes.
(i) Unipolar RZ (ii) Bipolar RZ
(iii) AMI (iv) Biphasic Manchester (2+4)

SECTION - B (20 Marks)

Attempt any 2 questions.

Each question carries 10 marks.

7. What is SPC? Explain load sharing mode of centralized SPC with the help of suitable diagram.

(4+6)

8. Explain basic time division time switching in sequential write/random read mode and random write/sequential read mode with suitable diagram.
9. Explain switching hierarchy and routing system in telecommunication. Also Explain T-1 hierarchy and DS-1 hierarchy in Telecommunication. (6+4)

SECTION - C**(20 Marks)***(Compulsory)*

10. (i) Define the following terms :
- (a) A-law and μ -law
 - (b) Relation between baud rate and bit rate
 - (c) Grade of service
 - (d) Blocking probability (8)
- (ii) Compare and contrast packet switching with circuit switching. (5)
- (iii) What is signaling technique? Explain basic message formats and layered architecture of SS7 signaling. (6)
- (iv) The traffic statistics of a company using a PABX indicates that 180 outgoing calls are

initiated every hour during working hours. Equal number of calls come in. Each call lasts for 200 seconds on the average. If the GOS required is 0.05 determine the number of lines required between the PABX and the main exchange.

(3)