

DECEMBER 2006

Code: D-20
Time: 3 Hours

Subject: ELECTRONIC SWITCHING SYSTEMS
Max. Marks: 100

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q. 1. must be written in the space provided for it in the answer book supplied and nowhere else.**
 - **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
 - **Any required data not explicitly given, may be suitably assumed and stated.**
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Q.1 Choose the correct or the best alternative in the following: (2x10)

a. A Master group consists of

- (A) 12 voice channels. (B) 24 voice channels
(C) 60 voice channels. (D) 300 voice channels

b. Direct inward dialing is used as a feature in

- (A) PSTN. (B) PBX.
(C) EPABX. (D) VPN.

c. Trunks are the lines that run between

- (A) Subscribers and exchange (B) switching system and power plant
(C) local area network. (D) switching stations.

d. Traffic Capacity is given by

- (A) Switching capacity \times Theoretical maximum load
(B) Switching capacity / Theoretical maximum load
(C) Theoretical maximum load / Switching capacity
(D) Theoretical maximum load \times Switching capacity

e. In a time multiplexed space switching system, one speech sample appears every

- (A) 125 microsec (B) 20 msec
(C) 125 msec (D) 1 sec

f. ISDN handles data pertaining to

- (A) All digital services (B) Speech and Video

- b. Discuss grade of service. During busy hour, 1500 calls were offered to a group of trunks and 8 calls were lost. The average call duration was 120 seconds. Calculate the traffic offered, traffic lost, Grade of service and total duration of congestion. **(8)**

Q.6 a. What are the different types of distributing frames used in exchanges? Explain their importance. **(8)**

- b. In a 10000 line exchange, 0000 to 2999 is allotted to x group of subscribers, out of which 40% are active during busy hour. The remaining numbers are domestic numbers out of which 20% are active. Each group consists of 100 subscribers. Determine the number of final selectors required. **(8)**

Q.7 a. What is meant by common control. Explain all the categories that are served by Common Control switching. **(8)**

b. Explain the working of broad band ISDN. **(8)**

Q.8 a. What is the need of an hybrid in telephone networks? How does it work? **(8)**

b. What layers are covered under end to end layer connectivity? Explain briefly the function of each one of them. **(8)**

Q.9 Write short notes on:

- (i) Stored Program Control.
- (ii) Congestion.
- (iii) Common channel signalling.
- (iv) PSTN.

(4 × 4)