1/21/12 Code: A-20

DECEMBER 2006

Code: D-20	Subject: ELECTRONIC SWITCHING SYSTEMS
Time: 3 Hours	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.

Q.1	Choose the correct or the best alternative in the following:	(2x10)
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- 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 × Theoretical maximum load
 - **(B)** Switching capacity / Theoretical maximum load
 - (C) Theoretical maximum load / Switching capacity
 - (**D**) Theoretical maximum load × 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

1/21/12 Code: A-20

		(C) Computer data only	(D) Speech only				
g. A star connected intermediate exchange is known as a							
		(A) Repeater exchange(C) Private branch exchange	(B) Hub exchange(D) Tandem exchange				
	h.	Time synchronization is necessary in					
		(A) FDM. (C) WDM.	(B) TDM.(D) Quadrature multiplexing				
	i. In a frame transmission, CRC stands for						
		(A) Code Renewable Check(C) Control and Refresh Code	(B) Cyclic Redundancy Check(D) Cyclic Refreshing of CPU				
	j. In a LAN network every system is identified by						
		(A) Name(C) IP Address	(B) MAC address(D) Serial number given by manufacturer				
		•	stions out of EIGHT Questions. on carries 16 marks.				
Q.2	a.		Strowger telephony? Explain with the help of waveforms (8)				
	b.	Using a combination of uniselectors a exchange and explain its working.	nd two motion selectors, draw a schematic of thousand line (8)				
Q.3	8	a. Name the switching schemes used (8)	l in a digital exchange. How call processing takes place?				
	ł	How speech is transmitted in a dig(8)	ital switching environment using PCM/TDM?				
Q.4	;	List the major differences in two blocking characteristics.	stage, three stage and n-stage networks. Compare their (8)				
	b.	A three stage network is designed with M=N=512, p= q = 16 and α = 0 s=16. Symbols carry their usual mean	0.65. Calculate the blocking probability of the network, it				
Q.5	a.	How does one arrive at the probability this be improved?	y of availability of free lines during the busy hour? How can (8)				

1/21/12 Code: A-20

b.	Discuss gra	de of service.	During bus	sy hour, 1500 c	calls were	offered to a	group of trunks	and 8
	calls were lo	st. The avera	ige call dur	ation 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)