

Code: DE20
Time: 3 Hours

Subject: ELECTRONIC SWITCHING SYSTEMS

Max. Marks: 100

DECEMBER 2008

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 A Choose the correct or the best alternative in the following: (2x10)

- a. Telex is a
- (A) Telephone Service between various subscribers
(B) Teleprinter Service between various subscribers
(C) Television Service between various subscribers
(D) Telegraph Service between various subscribers
- b. The bandwidth requirement of a telephone channel is
- (A) 3 KHz (B) 15 KHz
(C) 5 KHz (D) 25 KHz
- c. Distortion caused on telephone line by an adjacent one is called
- (A) Cross Fire (B) Inductive Disturbance
(C) Cross Talk (D) None of these
- d. Erlang is used to
- (A) Measure busy period (B) Give total busy period in minutes
(C) Measure average call rate (D) Indicate total call period
- e. The grade of service is measured in
- (A) Percentage (B) Number
(C) Fractional Number (D) Logarithmic Number
- f. Network with point-to-point link is known as
- (A) Fully Connected Network (B) Half Connected Network
(C) Duplex Connected Network (D) None of these
- g. SPC is used for
- (A) Carrying Exchange Control Functions

- (B) Carrying Subscriber Control Functions
- (C) Exchange Hardware
- (D) Signalling Purpose

h. Trunks are the lines that run between

- (A) subscribers and exchange
- (B) switching system and power plant
- (C) Local Area Network
- (D) switching systems

i. Example of circuit switching and S&F (Stored and Forward) switching is

- (A) Telephone and Post or Telegraph
- (B) Video Signal Post or Telegraph
- (C) Digital Signal Post or Telegraph
- (D) None of above

j. Network Layer is used for

- (A) Breaking up the data in frames for transmission
- (B) Deal with Error correction
- (C) Automatic Recovery of Procedure
- (D) Physical Architecture

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Explain crossbar exchange, with all call processing steps and diagrams. **(8)**
- b. Calculate the blocking probably P_b in 100 line strowger switching system where 10 calls are in progress and 11th one arrives, probably that there is a call in a given decade = 1/10 and probably that another call is destined to same decade but not to same number = 9/98. **(8)**
- Q.3** a. Explain simple telephone communication system with circuit and equation of current flow in microphone? **(8)**
- b. Find the total number of link L having five entities? Explain differences between folded and non-folded network. **(8)**
- Q.4** a. List all seven layer of OSI model and describe function of application layer. **(8)**
- b. Explain difference of Inchannel and Common channel signalling. Draw routing diagram of non-associated signalling. **(8)**

- Q.5** a. Explain topology method used in LAN technology in detail. **(8)**
- b. A CSMA/CD bus spans a distance of 1.5 Km. If data is 5 Mbps. What is minimum frame size where propagation speed in LAN cable is $200\text{ m}/\mu\text{s}$. **(8)**
- Q.6** a. What is Traffic Engineering? Define the term busy hour, traffic intensity and grade of service. **(8)**
- b. Distinguish between single stage and multistage networks. **(8)**
- Q.7** a. Name the switching schemes used in a digital exchange. Explain, how call processing takes place. **(8)**
- b. Explain SPC. Also discuss different modes of centralized SPC. **(8)**
- Q.8** Write short notes on any **TWO**:- **(16)**
- (i) Transmission plan
 - (ii) DTMF signalling
 - (iii) Non-blocking Networks
- Q.9** a. Discuss briefly subscriber loop system. Give some technical specification for subscriber lines. **(8)**
- b. Discuss different Routing plan adopted in a Telephone network. **(8)**