

AMIETE – ET (Current Scheme)

Time: 3 Hours

JUNE 2015

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

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.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- 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: (2×10)

- a. The number of point to point links required in a fully connected network for 50 entities is _____
- (A) 1250 (B) 50
(C) 2500 (D) 1500
- b. In a time multiplexed space switching system, one speech sample appears every _____
- (A) 125 micro sec (B) 250 micro sec
(C) 125 m sec (D) 1 sec
- c. ISDN handles data pertaining to _____
- (A) all digital services (B) speech and video
(C) computer data only (D) speech only
- d. Time synchronization is necessary in _____
- (A) FDM (B) TDM
(C) WDM (D) QAM
- e. In a LAN network every system is identified by its _____
- (A) Name
(B) MAC address
(C) IP Address
(D) Serial number given by manufacturer

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- f. Ethernet 10 Base 2 is an example of _____ network topology.
- (A) Mesh (B) Star
(C) Bus (D) Ring
- g. Common channel signalling in SS7 is _____
- (A) Out band control channel
(B) In band control channel
(C) Speech control channel
(D) None of these
- h. 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
- i. Trunks are the lines that run between _____
- (A) subscribers and exchange (B) switching system and power plant
(C) local area network (D) switching stations
- j. MAC is the abbreviation for _____
- (A) Multimedia Access Control
(B) Media Access Control
(C) Mobile Access Control
(D) Master Access Point Control

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

- Q.2** a. Discuss the various functions of a switching system. (8)
- b. List out the advantages and disadvantage of strowger switching system (8)
- Q.3** a. A group of 7 trunks is offered 4E of traffic, find (a) the grade of service (b) the probability that only one trunk is busy (c) the probability that only one trunk is free and (d) the probability that at least one trunk is free. (8)
- b. Define loss system and delay system. (2)
- c. Define Cent Call Seconds (CCS) and Grade of Service (GOS). (6)
- Q.4** a. A three stage switching structure supports 100 inlets and 400 outlets. Find (i) the number of cross points (ii) the number of primary and secondary switches used in the design. (8)

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- b. What are single stage and multistage switching networks? Compare the strengths and weaknesses of each. (8)
- Q.5** a. Draw and explain Space Division Switching in detail. (8)
- b. Explain and compare T-S-T and S-T-S switching techniques. (8)
- Q.6** a. Define Stored Program Control (SPC) and explain the distributed SPC in detail with the help of a diagram. (8)
- b. Enlist & explain the various steps involved in processing a call. (8)
- Q.7** a. Describe the architecture of SS7 common channel signalling network with the help of a neat labelled diagram. (8)
- b. Explain architecture of T1 link and DS-1 frame format in relation to the PCM signalling (8)
- Q.8** a. Explain and compare bus and ring topology used in LAN technology. (8)
- b. Explain the advantages and services offered by Asynchronous Transfer Mode (ATM) (8)
- Q.9** a. Explain Primary Rate Interface (PRI) and Basic Rate Interface (BRI) of ISDN. (6)
- b. Write short notes on the following:
- (i) B-ISDN
- (ii) Alternative routing (2×5 = 10)