

AMIETE – ET (Current & New Scheme)

Time: 3 Hours

June 2018

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. For a fully connected network with ' n ' entities, number of links required are: _____.

- (A) n (B) $n/2$
(C) $n(n-1)/2$ (D) none of these.

b. On average, during the busy hour, a company makes 120 outgoing calls of average duration of 2 minutes, the outgoing traffic is: _____

- (A) 125 micro sec (B) 4 Erlang
(C) 12 Erlang (D) 3 E

c. During the busy hour, 1200 calls were offered to a group of trunks and six calls were lost. The average call duration was 3 minutes, Grade of service will be: _____

- (A) 60 E (B) 59.7 E
(C) 0.3 (D) 0.005

d. The number of trunks N required to carry A erlangs with a GOS of B is given by _____.

- (A) $N = AB^{-1/k}$ (B) $N = A^2B^{-1/k}$
(C) $N = AB^{1/k}$ (D) None of these

e. In digital transmission, with 8-kHz sampling rate, a sample occurs every _____ .

- (A) 125 microseconds (B) 8 seconds
(C) 8000 seconds (D) 125 seconds

f. When PAM samples are switched in a time division manner, the switching is known as _____.

- (A) Digital time division (B) Analog space division switching
(C) Analog Time Division Switching (D) Digital space division switching.

g. A dual processor architecture may be configured to operate in: _____.

- (A) Standby mode (B) Synchronous duplex mode
(C) Load Sharing mode (D) any one of the three modes.

h. Exchanges which sent signals over the same circuits in the network as the connections which they control are known as: _____.

- (A) Common –channel signalling (B) Channel –associated signalling
(C) Compelled signaling (D) None of the above.

Code: AE64/AE115 Subject: TELECOMMUNICATION SWITCHING SYSTEMS

- i. The main difference/s between frame relay and X25 packet switching is/are _____
 (A) There is no link-by-link flow control or error control.
 (B) Switching of logical connections takes place at layer 2 instead of layer 3.
 (C) Call-control signaling is carried out on a logical connection separate from the data.
 (D) All of these.
- j. If there is no separate charge for local calls but include them in the rental then it is known as: _____
 (A) flat –rate tariff (B) message –rate charging
 (C) SPC charging (D) None of the these.

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

- Q.2** a. What are the features of a manual exchange that are also present in automatic switching systems? (10)
 b. Define the following types of networks: (2x3)
 (i) folded and nonfolded (ii) blocking (iii) nonblocking
- Q3** a. On average, one call arrives every 5 seconds. During a period of 10 seconds, what is the probability that: (8)
 (i) No call arrives?
 (ii) One call arrives?
 (iii) Two call arrive?
 (iv) More than two calls arrive?
- b. Explain lost call systems? Define Grade of Service for this system. (8)
- Q4.** a. Write applications of Gradings. (6)
 b. Compare the number of crosspoints required in single stage, and three stage networks for same number of inlets and outlets. (10)
- Q5.** a. What is the difference between analog time division switching and digital time division switching? (6)
 b. Explain Time Multiplexed Time Division Switching. How it is different from time multiplexed space division switching? (10)
- Q6.** a. How Centralised SPC and Distributed SPC are different? (6)
 b. Why a priority interrupt facility is necessary for processing in centralized control? Explain how interrupts are processed. (10)
- Q7.** a. What is Common Channel Signaling? What are its advantages? (8)
 b. Explain FDM carrier systems How outband signaling and Inband signaling are different? (8)
- Q8.** a. Explain Statistical multiplexing. How it is superior to conventional multiplexing? (10)
 b. How broadband network are different from narrow band? (6)
- Q9.** Write short notes on: (8+8)
 (a) Analog Networks (b) Integrated services Digital Networks