Code: DE62/DE113   Subject: TELECOMMUNICATION SWITCHING SYSTEMS

DipIETE – ET (Current & New Scheme)

Time: 3 Hours | **DECEMBER 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. Crossbar switching system is
   - **(A)** Electronic
   - **(B)** Electromechanical
   - **(C)** Both **(A)** and **(B)**
   - **(D)** None of these

b. During the busy hour, 1600 calls were offered to a group of trunks and 4 calls were lost. The grade of service is
   - **(A)** 4/1600
   - **(B)** 1600/4
   - **(C)** 1600*4
   - **(D)** None of these

c. In Switching MDR stands for -
   - **(A)** Memory Device Resistance
   - **(B)** Main Data Resistance
   - **(C)** Main Data Register
   - **(D)** Memory Data Register

d. The modes of time division time switch are
   - **(A)** Phased & slotted operation
   - **(B)** Phased operation
   - **(C)** Slotted operation
   - **(D)** None of these

e. PABX Stands for
   - **(A)** Private Accounts Bank Exchange
   - **(B)** Private Automatic Branch Exchange
   - **(C)** Public Automatic Branch Exchange
   - **(D)** Public Account Branch Exchange

f. In band (VF) signalling is also called
   - **(A)** Out band signalling
   - **(B)** Voice frequency signalling system
   - **(C)** PCM Signalling
   - **(D)** PAM Signalling

g. In CSMA (Carrier Sense Multiple Access), if station senses medium before trying to use it then chance of collision can be
   - **(A)** Increased
   - **(B)** Reduced
   - **(C)** Highlighted
   - **(D)** Both **(B)** & **(C)**

h. CDMA differs from TDMA because there is no
   - **(A)** Link
   - **(B)** Bandwidth
   - **(C)** Carrier
   - **(D)** Time sharing

i. In a cellular network a country is divided into a large number of small areas, known as
   (A) Unit   **(B)** Cells
   (C) Data   **(D) (A)** & **(B)** both

j. Point to point telephone connection is demonstrated by
   (A) Graham Bell   **(B)** Erlang
   (C) Strowger   **(D) (A)** & **(B)** both

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

Q.2 a. Describe Cross Bar exchange organisation.   **(8)**

  b. Define following terms-
      (i). Switching Matrix
      (ii). Symmetric Network
      (iii)Transit Exchange
      (iv) Blocking Network   **(2*4=8)**

Q.3 a. A subscriber makes three phone calls of three minutes, four minutes and two minutes duration in a one hour period. Calculate the subscriber traffic in Erlangs, CCS and CM.   **(3+3+2=8)**

  b. Describe Markov Chain.   **(8)**

Q.4 a. What are the applications of grading.   **(8)**

  b. Describe two stage network with the help of a neat diagram.   **(8)**

Q.5 a. Explain basic Time Multiplexed Space Switching with the help of a neat diagram.   **(5+3=8)**

  b. Give the difference between phased operation and slotted operation of Time Division Time Switch.   **(8)**

Q.6 a. Explain stored program control (SPC) processor architecture with the help of neat diagram.   **(10+2=12)**

  b. Given that MTBF = 2000 hours and MTTR= 4 hours calculate the availability and unavailability of a signal processer system.   **(4)**

Q.7   Write short note on :-
      (a) PCM Signalling
      (b) Inter Register Signalling   **(2*8=16)**

Q.8 a. Describe asynchronous transfer mode.   **(8)**

  b. Define packet switching and discuss its relative merits.   **(3+5=8)**

Q.9   Write short note on :
      (i) Cellular Networks
      (ii) Integrated Digital Network (IDN)   **(2*8=16)**