Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.TECH/ECE/NEW/SEM-6/EC-603/2013

2013

TELECOMMUNICATION SYSTEM

Time Allotted : 3 Hours | Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

i) Attenuation can be reduced in subscriber loop using

a) higher diameter in copper wire

b) series of inductance in line

c) lower diameter in copper wire

d) series of a capacitance in line.

ii) Switching capacity of a 6 × 6 cross-bar switching system is

a) 6 b) 3

c) 12 d) 36.

iii) Blocking probability is

a) time congestion b) call congestion

c) both (a) and (b) d) none of these.

iv) When the control subsystem is outside the switching network, then the system is called

a) direct control

b) common control

c) stored program control

d) none of these.

v) Circuit switching takes place at the layer of

a) data line b) physical

c) network d) transport.

vi) In a pulse dialing, the inter digit gap may be

a) 1 sec b) 10 sec

c) 200 m sec d) 100 m sec.

vii) If PCM binary samples are switched, switching is known as

a) analog time division switching

b) digital time division switching

c) time division switching

d) none of these.

viii) High bandwidth for short duration is needed for

a) data traffic b) voice traffic

c) both (a) and (b) d) neither (a) nor (b).

ix) Bandwidth of digital transission media is expressed in

a) Hz b) Bits per second

c) Decibel d) Erlang.

x) Which traffic is not at all fault tolerant ?

a) Data traffic b) Voice traffic

c) Both (a) and (b) d) None of these.

xi) Unit of traffic intensity is

a) Ampere b) Ohm

c) mho d) Erlang.

xii) A telephone set requires bias current of

a) 1 – 2 mA b) 4 – 6 mA

c) 20 – 30 mA d) 50 – 100 mA.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Explain difference between circuit switching and packet switching technologies.

3. Derive Erlang *B* formula.

4. Describe merits and demerits of fibre optic cables *vs* copper and co-axial cables for telecommunication transmission media.

5. Describe strowger switching system.

6. Describe facsimile transmission and its technical details.

7. Discuss about different switching networks. What is transit exchange ? What are the advantages of automatic switching system over manual switching system. 2 + 1 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

8. a) What is SS7 signaling system ? Explain its protocol. 6

   b) Explain hybrid circuit for digital exchange. 5

   c) Describe switching hierarchy and routing. 4

9. a) What is ISDN ? Explain transmission channel in ISDN. 5

   b) What are drawbacks of ISDN ? How does B-ISDN overcome them ? 5

   c) Explain functional grouping and reference point in ISDN. 5

10. a) Distinguish between time switch and space switch. 2

    b) Explain time division space switch. 5

    c) Describe the operation of time division time switching and calculate the switching capacity of it. 8

11. Define voice over IP. What is session initiation protocol ? Describe SIP message with example. How does telephone communications operate using H.323 standard protocol ? 2 + 1 + 6 + 6

12. Write short notes on any *three* of the following : 3 × 5

    i) RS232C

    ii) Digital PABX

    iii) Data Terminal Equipment (DTE)

    iv) ADSL

    v) Wireless in local loop.