

Name :

Roll No. :

Invigilator's Signature :

CS/B.TECH/ECE-(O)/SEM-5/EC-501/2012-13

2012

TELECOMMUNICATION SYSTEMS

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) A fully connected network has five nodes. So physical link required is
- | | |
|-------|--------|
| a) 20 | b) 10 |
| c) 5 | d) 15. |
- ii) ISDN means
- | |
|---|
| a) Integrated Service Digital Network |
| b) International System Digital Network |
| c) Indian Supply Direct Network |
| d) None of these. |

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- iii) When the control sub-system is outside the switching network, then the system is called
- a) Direct Control
 - b) Common Control
 - c) Stored Program Control
 - d) None of these.
- iv) GOS in India is
- a) 0.02
 - b) 0.002
 - c) 0.2
 - d) 0.32.
- v) The ratio of the number of successful calls to the total No. of calls attempt is called
- a) Busy Hour Call Attempt
 - b) Call Completion Ratio
 - c) Busy Hour Calling Rate
 - d) Traffic Load.
- vi) Network termination interface between a customer premises and ISDN network is
- a) NT1
 - b) NT2
 - c) TE1
 - d) TE2.
- vii) Which of the following is correct ?
- a) 1E = 60 CCS
 - b) 1E = 36 CCS
 - c) 1E = 3600 CCS
 - d) None of these.
- viii) ISDN B-Channel carries data and services at
- a) 16 kbps
 - b) 32 kbps
 - c) 64 kbps
 - d) 1.544 kbps.

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- ix) In fully connected network with N nodes number of link required is
- a) $n(n-1)/2$ b) $n(n+1)/2$
 c) $n/2$ d) $n^2/2$.
- x) In a pulse dialing, the inter-digit gap may be
- a) 1 sec b) 10 sec
 c) 200 msec d) 100 msec.
- xi) The unit of traffic intensity is
- a) ampere b) ohm
 c) erlang d) metre
- xii) In DTMF tone, the freq. used is
- a) 697 Hz/1209 Hz b) 920 Hz/1478 Hz
 c) 220 Hz/540 Hz d) 50 Hz/120 Hz.

GROUP – B**(Short Answer Type Questions)**Answer any *three* of the following. $3 \times 5 = 15$

2. a) What do you mean by point to point communication ?
Mention the disadvantage of the scheme.
- b) What is Facsimile Transmission ? $2 + 1 + 2$
3. Explain the principle of DTMF dialing.
4. What is BORSCHT function ? Why is this important in electronic exchanges ? $2 + 3$
5. What do you mean by electronic space division switching ?
Given MTBF = 2000 hr and MTTR = 4 hr, calculate unavailability of single & dual processor systems.
6. Explain subscriber local loop architecture.

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GROUP – C**(Long Answer Type Questions)**Answer any *three* of the following. $3 \times 15 = 45$

7.
 - a) What are GOS and Blocking Probability ?
 - b) During 1200 calls offered to a group of trunks 12 calls were lost. The average call duration was 3 minutes. Find out the traffic offered and traffic carried in Erlang. Also find out the value of GOS and the total duration of period of congestion.
 - c) An exchange serves 2000 subscribers. If the average BHCA is 10,000 and the CCR is 60%, calculate the busy hour calling rate. $4 + 8 + 3$
8.
 - a) What are the basic approaches to the design of subscriber access to strowger system ? Describe them.
 - b) Describe the operation of Time Division Time Switching. $8 + 7$
9.
 - a) Describe the cen ralized SPC organized system.
 - b) Explain the architecture of 5ESS system.
 - c) Explain the difference between circuit and packet switching $7 + 3 + 5$
10.
 - a) Describe the functional grouping and reference points of ISDN.
 - b) How many transmission channels are exists in ISDN ? Explain these.
 - c) Write down the differences between in channel and common channel signaling. $7 + 3 + 5$

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