

CS/B.Tech/Even/ECE/6th Sem/EC-603/2014

2014**Telecommunication System***Time Alloted : 3 Hours**Full Marks : 70**The figure 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 10x1=10
- i) A switching network with unequal number of inlets and outlets is called
- Symmetric Network
 - Asymmetric Network
 - Folded Network
 - Electronic Switching System
- ii) ESS stands for
- Electronic Switching System
 - Effective Electronic Switching System
 - Early Electronic Switching System
 - None of these
- iii) The ratio of number of successful calls to the total number of calls attempts is
- Busy our call attempt
 - Call completion rate
 - Busy our calling rate
 - Traffic load

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- iv) Network termination interface between a customer premises and ISDN network is called
- TE1
 - TE2
 - NT1
 - NT2
- v) MTTR means
- Mean time to repair
 - Maximum time to repair
 - Most time to repair
 - Mean time to represent
- vi) GOS in India is
- 0.002
 - 0.02
 - 0.2
 - 2
- vii) The Inter digit gap between two digits in pulse dialing is at least
- 200 ms
 - 200 ns
 - 200 μs
 - none of these
- viii) CHILL is a
- CCITT language
 - IEEE language
 - IEE language
 - ANSI language
- ix) Which of the following is correct?
- IE = 60 CCS
 - IE = 36 CCS
 - DE = 3600 CCS
 - None of these
- x) In DTMF tone, the frequency used is
- 697 Hz/1209 Hz
 - 920 Hz/1478 Hz
 - 220 Hz/540 Hz
 - 50 Hz/120 Hz
- xi) ESS stands for
- Electronic Switching System
 - Early Electronic Switching System
 - Effective Electronic Switching System
 - none of these
- xii) In a strowger system the high value of CCI indicates
- good design
 - poor design
 - No impact on design
 - None of these

GROUP - B**(Short Answer Type Questions)**Answer any *three* of the following.

3x5=15

2. What do you mean by point- to- point communication? Mention the disadvantage of the scheme. (3+2)
3. What is BORSCHT function? Why is this important in electronic exchanges? (2+3)
4. What do you mean by electronic space division switching? Given MTBF=2000hr and MTTR=4 Hrs, calculate unavailability of single and dual processor system. (3+2)
5. How many types of transmission media are used in telecommunication? What are the advantages of twisted pair cable over parallel wire cable? What are step index fibre and graded index fibre? (1+2+2)
6. Explain the operation of 2-wire to 4-wire Hybrid system. (5)

GROUP - C**(Long Answer Type Questions)**Answer any *three* of the following.

3x15=45

7. a) What are the differences between in channel signaling and common channel signaling?
b) What do you mean by Time-division switching?
c) Classify Time-division switches.
d) Explain the principle of operation of input-controlled Time division Space switch. (5+2+ 3+5= 15)
8. a) Explain the hierarchical routing with suitable diagram.

b) Explain the various signaling tones with diagram.

(8 + 7=15)

9. a) Explain centralized SPC and the different mode of it.
b) How load sharing mode is superior to synchronous duplex mode?
c) How centralized SPC differs from distributed SPC?
d) In the load sharing configuration of centralized SPC MTBF = 3000hrs. and MTTR=3 hrs. Calculate the unavailability for single and dual processor system. (5+2+3+5=15)
10. i. What are GOS and Blocking probability?
ii. Derive the Erlang's B formula.
iii. During 1200 calls offered to a group of trunks 12 calls were lost. The average call duration was 3 minutes.
Find the traffic offered and traffic carried in Erlang. Also find out the value of GOS and the total duration of period of congestion. (5+5+5)
11. Write short notes on any three of the following;
i. DTE and DCE
ii. T Carrier System
iii. Voice over IP
iv. ADSL
v. 5ESS systems (3x5)