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B.Tech. 7th Semester End-Term Examination

ECE

TELECOMMUNICATION SWITCHING AND TRANSMISSION SYSTEM

(New Regulation)

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer Q.No.1 and any *FOUR* from the rest.

Answer Questions No.1 and any *FOUR* from the rest.

(10 × 1 = 10)

1. (i) Which level of distributed SPC handles scanning, distribution and marking functions?
 - (a) Level 1 processing
 - (b) Level 2 processing
 - (c) Level 3 processing
 - (d) Level 4 processing
- (ii) In _____, Alexander Graham Bell demonstrated his telephone set.
 - (a) 1876
 - (b) 1856
 - (c) 1847
 - (d) 1837
- (iii) If the binary coded values are transferred during the same time interval from input to output, the technique is called _____.
 - (a) Digital Switch
 - (b) Time Switch
 - (c) Space Switch
 - (d) Combination Switch
- (iv) Software for SPC is written in _____ language.
 - (a) Machine
 - (b) High Level
 - (c) Assembly
 - (d) Low Level
- (v) Which of the following statement may be true for the graded index fiber:
 - (a) n_1 and n_2 are the respective refractive indices of the core and cladding
 - (b) A sudden change of the refractive at the interface of core and cladding
 - (c) Highest refractive index along the central axis of the core
 - (d) Lowest refractive index along the central axis of the core

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(vi) The average number of calls in progress is termed by:

- (a) Traffic
- (b) Holding time
- (c) Occupancy
- (d) Congestion

(vii) _____ is the lowest layer of OSI layers.

- (a) Physical Layer
- (b) Transport Layer
- (c) Application Layer
- (d) Data Layer

(viii) RARP stands for

- (a) Resolution Address Reserve Protocol
- (b) Reserve And Resolution Protocol
- (c) Reserve Address Resolution Procedure
- (d) Reserve Address Resolution Protocol

(ix) Efficiency of a datagram network is _____ that of a circuit – switched network.

- (a) equivalent to
- (b) Worse than
- (c) better than
- (d) dependent on

(x) IPV6 consists of:

- (a) 8 bits
- (b) 16 bits
- (c) 32 bits
- (d) 64 bits

2. (a) Briefly differentiate the space division switching and time division switching. (3)
- (b) Explain the synchronous duplex architecture of electronic switching systems using centralized control. (5)
- (c) Why is microprogramming the favored choice for level 3 processing? (4)
- (d) What is the recommended approach to a software design? (3)
3. (a) Give the design factors relating to the transmission medium and the signal which determines the data rate and distance. (4)
- (b) Who determined the grade of service of lost call system? (1)
- (c) List the advantages of using Optical Fiber for communication. (4)
- (d) Define busy hour. During the busy 1500 calls were offered to a group of trunks and nine calls were lost. The average call duration was 3 minutes. Find: (i) The traffic offered (ii) The traffic carried (iii) The traffic lost (iv) The grade of service (v) The total duration of the periods of congestion. (6)

4. (a) Give the abstract representation of network architecture. (3)
- (b) In a telephone exchange system, the average call duration is 2 minutes. A call has already lasted 4 minutes. What is the probability that: (4)
- (i) The call will last at least another 4 minutes?
- (ii) The call will end within the next 4 minutes?
- (c) Name the network topologies. (3)
- (d) Explain Banyan switch with a neat diagram. (5)
5. (a) Give the structure of packet switches. (3)
- (b) Explain a trivial circuit – switched network with four switches and four links. (5)
- (c) Give the restrictions imposed on classless address blocks: (3)
- (d) Explain the IPV4 addresses. (4)
6. (a) Explain the five layers of TCP / IP with a neat diagram. (3)
- (b) List the DSL technologies with its characteristics. (4)
- (c) Explain briefly the architecture of ATM network. (3)
- (d) Write the features of V.90 standard if MODEM. (5)
7. (a) Explain the division of Bandwidth in ADSL with a neat diagram. (5)
- (b) Explain briefly the two ways to incorporate the ATM technology. (3)
- (c) What is TELNET? Explain. Also, its three modes of operation. (7)