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B.Tech. V Sem.(Re-Back) Exam Nov.-Dec. 2012

Computer Science

5CP/CS5 Telecommunication Fundamentals

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 24

Instructions to Candidates:

*Attempt any **five questions** selecting **one question** from **each unit**. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly.*

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. **Nil** 2. **Nil**

UNIT-I

1. (a) What do you mean by frequency spectrum and describe it? 8

1. (b) Draw the following reference model used in computer communication.
(i) OSI model (ii) TCP/IP mode.
What are the key difference in the above models. 8

OR

1. Write short notes on following.
(i) Optical fiber (iii) Wireless Transmission
(ii) Co-axial cable (iv) Microwave and satellite Transmission.
4x4=16

UNIT-II

2. (a) Define the following terms.

(i) Bit rate (ii) channel Capacity

(iii) Signal Strength (iv) SNR 2x4=8

2. (b) Suppose the spectrum of a channel is between 3MHz and 4MHz and signal to noise ratio (SNR) is 24dB. Compute how many signaling levels are required to achieve the reachable data rate? 8

OR

2. (a) Compare the following:
Delta modulation and Pulse code Modulation 8

2. (b) An NRZ-L signal is passed through a filter with r=0.6 and then modulated on to a carrier. The data rate is 2400 Bits/sec Evaluate the bandwidth for ASK and FSK. Assume Df= 5KHz for FSK. 8

UNIT-III

3. (a) Show that slotted ALOHA has a maximum throughput of twice the maximum through-put of pure ALOHA. 8

3. (b) Explain in brief carrier sense multiple access protocols. 8

OR

3. (a) Compute the maximum channel utilization for MAN which uses CSMA mechanism and has a length of 50 km and operates at 50 MbPS with a frame length of 2000 bits. 8

3. (b) Write short notes on:
(i) Frame Relay (ii) PPP 4x2=8

UNIT-IV

4. (a) With help of a schematic describe the working of:
(i) Space division switching. (ii) Time division switching. 4x2=8

4. (b) Describe the working of ADSL in brief and give the advantages and disadvantages of ADSL. 8

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OR

4. (a) Write short notes on ISDN. 8

4. (b) Compare circuit switching and a packet switching. 8

UNIT-V

5. Write short notes on any four
(i) Router (ii) Repeater (iii) Multiplexer.
(iv) GSM (v) File server (vi) Proxy server 4x4=16

OR

5. (a) Explain the architecture of Bluetooth and also give the applications of Bluetooth. 8

5. (b) Explain the network architechture of DSL and also give the features of DSL. 8
