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IT - 501

B.E. V Semester

Examination, December 2013

Data Communication

Time : Three Hours

Maximum Marks : 70

Note: Attempt *any One* question from each unit.
Assume suitable data if necessary.

Unit - I

1.   a)   Explain the terms amplitude, period, frequency and phase. Also Discuss three important bodies that help standardize data communication.   7

       b)   If a periodic signal is decomposed into five sine waves with frequencies of 100,300,500,700 and 900 Hz, what is the bandwidth? Draw the spectrum, assuming all component have a maximum amplitude of 10V.   7

OR

2.   a)   An analog signal carries 4-bits in each signal unit. If 1000 signal units are sent per second, find the band rate and the bit rate. The bit rate of a signal is 3000. If each signal unit carries 6 bits, what is the band rate?7

       b)   What does the shannon capacity have to do with communications. Discuss about through put, delay and jitter in Data Communication.   7

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Unit - II

3. a) What is data transmission. Explain briefly. Parallel and Serial transmission and synchronous and asynchronous transmission. 7

   b) Find the maximum bit rates for FSK signal. If the bandwidth of the medium is 12000 Hz and the difference between the two carriers is 2000Hz. Transmission is in fuel duplex mode. 7

OR

4. a) How many amplitude levels are there for each of the following methods? 7

   (i) Unipolar   (ii) PVRZ-L   (iii) NRZ-I

   (iv) RZ   (v) Manchester

   b) What is line configuration. Explain the terms of point to point and point to multipoint configuration. 7

Unit - III

5. a) Explain the telephone network technology and signaling - SS7 for data communication. 7

   b) What are the difference between the pleisochronous digital hierarchy and synchronous digital hierarchy. 7

OR

6. a) What is the purpose of DSLAM? Why is ADSL unsuitable for businesses. Which DSL technology is best suited for businesses. 7

   b) Five signal sources are multiplexed using TDM. Each source produces 100 character's per second. Assume that there is byte interleaving and that each frame requires 1 bit for synchronization. What is the frame rate? What is the bit rate on the path? 7

Unit - IV

7. a) Name and explain the two technologies used in a time-division switch compare a TSI to a TDM bus. 7

   b) Give a remainder of 111, a data unit of 10110011, and a divisor of 1001, is there an error in the data unit. 7

OR

8. a) What are three types of redundncs cheeks used in data communication? How can detect the parity bit damaged data unit. 7

   b) What is the Integrated services digital network. Explain the concepts of the ISDN Interface and ISDN services. 7

Unit - V

9. a) Explain transmission media? What is the form of the signal in twisted pair cable and coxial cable? How does this differ from the signal in fiber-optic cable? 7

   b) If the speed of light in fiber is 2×10^8 m/sec. What is the bandwidth of the fiber that passes light from 1000 nm to 1500 nm without significant loss in magnitude. 7

OR

10. Write short note on the following 14

    (a) RJ-45

    (b) Network Interface Card

    (c) Virtual Container

    (d) Cable Standard Category 5 6 and 7

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