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A – 6443

Reg. No. : .....

Name : .....

Fifth Semester B.Tech. Degree Examination, September 2016
(2008 Scheme)
08.506 : DATA COMMUNICATION (F)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions.

1. Why is Decibel used for measuring signal strength ?
2. Draw the attenuation characteristics of a typical leased line. State the role of an equalizer.
3. Explain synchronous transmission.
4. Differentiate bipolar AMI and pseudoternary encoding technique.
5. What is DWDM ?
6. What is the purpose of using modulo-2 Arithmetic in computing an FCS ?
7. A sine wave is offset $\frac{1}{6}$ cycle with respect to time 0. What is its phase in degrees and radians ?
8. Define piggybacking. Mention its advantages.
9. Given a channel with an intended capacity of 20 Mbps. The bandwidth of the channel is 3 MHz. What is SNR required to achieve this capacity ?
10. Explain about Hamming codes. **(10×4=40 Marks)**

P.T.O.

PART – B

Answer **any one** question from **each** Module.

Module – I

11. a) Explain the transmission characteristics and applications of optical fiber. **10**

    b) Explain the relationship between data rate, bandwidth and SNR ratio. **10**

OR

12. a) Explain Shannon's theorem. **5**

    b) If the peak voltage value of a signal is 30 times the peak voltage value of the noise. What is the SNR ? What is the SNR dB ? **5**

    c) What are transmission impairments ? Explain. **10**

Module – II

13. a) Encode the following bit stream into NRZ and Biphase encoding schemes.
    0101011110000 **10**

    b) Explain the characteristics of statistical TDM. **10**

OR

14. Explain different techniques for encoding digital data into analog signals. **20**

Module – III

15. Explain the following :

    i) Wi Max

    ii) GSM

    iii) GPRS. **20**

OR

16. A CRC is constructed to generate a 4-bit FCS for an 11-bit message. The generator polynomial is $x^4 + x^3 + 1$.

    a) Draw the shift register circuit that would perform this task.

    b) Encode the data bit sequence 10011011100 using generator polynomial and write the codeword. **20**