(Pages : 2) **6134**

Reg. No. : .....

Name : .....

Fifth Semester B.Tech. Degree Examination, November 2011
(2008 Scheme)
Branch : INFORMATION TECHNOLOGY
08.506 : Data Communication (F)

Time: 3 Hours Max. Marks: 100

PART – A

Answer **all** questions.

1. What is the difference between half duplex and full duplex transmission modes ?
2. What is intersymbol interference ?
3. Explain asynchronous transmission.
4. What is differential encoding ? Give an example.
5. What is DWDM ?
6. What is the role of constellation diagram in analog transmission ?
7. What is the purpose of using modulo 2 arithmetic rather than binary arithmetic in computing an FCS ?
8. What is a store-and-forward network ?
9. What is frequency reuse ?
10. What is GPRS ? **(10×4=40 Marks)**

PART – B

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

Module – I

11. a) Explain error free capacity. **10**

    b) A TV channel has a bandwidth of 6 MHz. If we send a digital signal using one channel, what are the data rates if we use one harmonic, three harmonics, and five harmonics ? **5**

    c) What is crosstalk ? **5**

OR

P.T.O.

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

    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) If a binary signal is sent over a 3-kHz channel whose signal-to-noise ratio is 20dB, what is the maximum achievable data rate ? **5**

Module – II

13. a) Explain amplitude modulation in detail. **10**

    b) Four channels are multiplexed using TDM. Each channel sends 100 bytes/sec and we multiplex 1 byte per channel. Find the size of the frame, the duration of a frame, the frame rate, and the bit rate for the link. **5**

    c) What is meant by quantizing noise ? **5**

OR

14. a) Draw the spectral density of various signal encoding schemes. **10**

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

Module – III

15. 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 the generator polynomial and write the codeword. **20**

OR

16. a) Compare circuit switching and packet switching. **10**

    b) An 8-bit byte with binary value 10101111 is to be encoded using an even-parity Hamming code. What is the binary value after encoding ? **10**
