Reg. No. : | | | | | | | | | | |

Question Paper Code: 31386

B.E. / B.Tech. DEGREE EXAMINATION, NOVEMBER 2015

Third Semester

Information Technology

01UIT306 - ANALOG AND DIGITAL COMMUNICATION

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What is the need for modulation?
2. Define sensitivity and selectivity.
3. What are the advantages of QPSK?
4. For an 8-PSK system, operating with an information bit rate of 24*kbps*, determine bandwidth efficiency.
5. Draw the eye pattern and indicate hoe ISI is measured from it.
6. Determine the relationship between the pulse rate and bit rate.
7. Define companding.
8. Discuss the interpretation obtained from eye pattern.
9. State the merits of FHSS.
10. What is near far effect in a CDMA system?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain the principles of amplitude modulation. (8)

(ii) Illustrate on frequency spectrum analysis of angle modulated waves. (8)

Or

(b) (i) Distinguish between FM and PM by giving its mathematical analysis. (8)

(ii) Derive the relationship between the voltage amplitudes of the side band frequencies and the carrier and draw the frequency spectrum. (8)

12. (a) (i) Draw and explain the operations of non-coherent and coherent FSK modulators. (8)

(ii) Compare and contrast the various digital communication systems. (8)

Or

(b) Draw the constellation diagram of QPSK modulation and explain the QPSK modulation and demodulation of QPSK. (16)

13. (a) Explain the functional description of digital communication system in detail. (16)

Or

(b) Define channel modeling and also briefly explain the Gilbert model of bursty channels. (16)

14. (a) (i) Explain the concepts of PCM and calculate the sampling rate for PCM if the frequency ranges from 1000 to 4000 *Hz*. (10)

(ii) Write a short note on bandwidth requirements of PCM. (6)

Or

(b) (i) Explain the draw backs of delta modulation and explain the significance of adaptive delta modulator. (8)

(ii) Discuss about the causes of ISI. (8)

15. (a) Explain the two types of FH spread spectrum systems with suitable diagrams. (16)

Or

(b) (i) Describe the operation of a CDMA multiplexing system. (10)

(ii) List the advantages of CDMA over TDMA multiple access scheme. (6)
