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

Question Paper Code: 41458

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fifth Semester

Electrical and Electronics Engineering

14UEC523 - COMMUNICATION ENGINEERING

(Common to Electronics and Instrumentation Engineering and Instrumentation and Control Engineering)

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. In a 100% AM signal power contained in lower sideband is (assume DSBSC sysytem with Pc = 100watts)

   (a) 25watts (b) 50watts (c) 100watts (d) none of these

2. The noise interference is more in

   (a) AM (b) PM (c) FM (d) Both (a) & (c)

3. MSK waveform does not have _____ variations.

   (a) frequency (b) phase (c) angle (d) amplitude

4. Which is not digital modulation system?

   (a) PCM (b) DM (c) PAM (d) ADM

5. The binary sequence is converted into _____ signal by using the encoder

   (a) NRZ (b) RZ (c) Both (a) & (b) (d) None of these

6. Parity check bit for error detection is used in

(a) data transmission (b) digital computers
(c) voice communication (d) none of these

7. The most important application of the spread spectrum technique is

(a) time division multiplexing (b) code division multiplexing
(c) both (a) and (b) (d) none of these

8. The baud rate is defined as

(a) The no of samples per second (b) The no. of revolutions per second
(c) Both (a) and (b) (d) None of these

9. Example of power limited communication channel is

(a) co-axial cable (b) cellular channel (c) satellite (d) PSTN

10. _____ is a fiber specification, most important to the designer point of view

(a) Bandwidth (b) Attenuation (c) Numerical aperture (d) None

PART - B (5 x 2 = 10 Marks)

11. Define standing wave ratio.

12. Calculate the capacity of a standard 4 kHz telephone channel with a 30 dB signal to noise ratio.

13. Compare NRZ and RZ.

14. What is meant by multiple access and also mention a few MA techniques?

15. What is meant by acceptance angle?

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Illustrate the operation of reactance modulator in FM generation. (8)

(ii) With suitable sketch discuss about square law detector. (8)

Or

(b) (i) Explain the frequency spectrum and bandwidth of an AM wave. (10)

(ii) Draw a pre-emphasis circuit and explain it. (6)

17. (a) With a neat block diagram explain the PCM modulation and demodulation. Derive the processing gain of the DPCM. (16)

Or

(b) Explain the QPSK modulation scheme with its constellation diagram. (16)

18. (a) (i) Write in detail the procedure of Shannon-fano coding scheme with suitable example. (10)

(ii) Explain the line coding scheme. (6)

Or

(b) Briefly discuss on various error control codes and explain in detail with one example for convolution code. (16)

19. (a) With neat block diagram explain the frequency division multiple access technique. Discuss its application in communication. (16)

Or

(b) (i) Discuss the concept of CDMA techniques and mention its merits and demerits. (8)

(ii) Compare the performance of SDMA with FDMA and TDMA. (8)

20. (a) (i) Define and explain SCADA. (8)

(ii) Develop the concept of satellite link design. (8)

Or

(b) (i) Explain the various types of satellites. (8)

(ii) How would you explain the concept of optical sources and detectors? (8)