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

Question Paper Code: 45423

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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. The _____ signal can be detected with the help of synchronous detector.

   (a) SSB (b) DSB-SC (c) SSB-SC (d) none of these

2. VSB modulation is preferred in TV because

   (a) it reduces the bandwidth requirement to half
   (b) it avoids phase distortion at low frequencies
   (c) it results in better reception
   (d) none of these

3. Frequency shift keying is used mostly in

   (a) Satellite Communication (b) Telephony
   (c) Telegraphy (d) Radio Transmission

4. Quantizing error occurs in

   (a) PAM (b) PCM (c) TDM (d) FDM

5. In hamming codes, the syndrome is given by

(a) $S = XH^T$ (b) $H = SY^T$ (c) $S = YH^T$ (d) $S = HY^T$

6. The entropy of a source with a symbol set containing 64 symbols each with a probability $P_i = 1/ 64$ is

(a) 3 bits/symbol (b) 4 bits/symbol (c) 8 bits/symbol (d) 6 bits/symbol

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. What is AM Vestigial sideband?

12. Distinguish between QAM and PAM.

13. Define block codes and rate of code.

14. List the different types of handoffs.

15. Define numerical aperture.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Derive the expression for the bandwidth required for a Gaussian modulated WBFM signal. (8)

(ii) Discuss the relation and deviation between phase and frequency modulation. (8)

Or

(b) Using suitable Mathematical analysis show that FM modulation produces infinite sidebands. Also deduce an expression for the frequency modulated output and its frequency spectrum. (16)

17. (a) With neat sketch explain the generation of delta modulated signal and derive the expression for SNR. (16)

Or

(b) Explain QPSK transmitter and receiver with block diagram. Also draw the constellation and phasor diagram of QPSK. (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) (i) Compare the performance of CDMA with FDMA and TDMA. (8)

(ii) Draw and explain the block diagram of transmitter and receiver of CDMA. (8)

Or

(b) Explain CDMA with necessary block diagrams. (16)

20. (a) (i) Illustrate the uplink and downlink model of satellite communication system. (8)

(ii) Explain the concept of Optical sources and detectors. (8)

Or

(b) Explain Optical Fiber Communication link with a neat block diagram. List the advantages and disadvantages of Optical Fiber Communication. (16)

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