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Question Paper Code: 45423

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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 system with $P_c = 100$ watts)
(a) 25 watts (b) 50 watts (c) 100 watts (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. Quantizing error occurs in
(a) PAM (b) PCM (c) TDM (d) FDM

5. The information rate R is less than or equal to a rate C is called the
 - (a) Channel capacity
 - (b) Coding
 - (c) Probability
 - (d) Information rate
6. Linear codes are used for
 - (a) Forward error detection
 - (b) Backward error detection
 - (c) Backward error correction
 - (d) Forward error correction
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 _____ spread spectrum is a FM or FSK technique.
 - (a) Frequency Hopping
 - (b) Direct Sequence
 - (c) Transistors
 - (d) Semiconductor Lasers
9. _____ is used as a figure of merit for the fiber.
 - (a) Aperture angle
 - (b) Refractive Index
 - (c) Numerical Aperture
 - (d) None of these
10. Detector used in optical fiber is
 - (a) Photo diodes
 - (b) LEDs
 - (c) Transistors
 - (d) Semiconductor Lasers

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. List the different types of handoffs.
15. Define numerical aperture.

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) 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) Explain Delta modulation and its demerits. Suggest a method to overcome the demerits of DM. (16)

Or

(b) Explain QPSK transmitter and receiver with block diagram. Also draw the constellation and phasor diagram of QPSK. (16)

18. (a) (i) Explain the concept of block codes and its properties. (8)

(ii) Illustrate the coding and decoding process of block codes. (8)

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) Explain CDMA with necessary block diagrams. (16)

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

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

Or

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