Reg. No. :

Question Paper Code: 41451

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

Fifth Semester

Electronics and Communication Engineering

14UEC501 - DIGITAL COMMUNICATION

(Regulation 2014)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Basis functions are always_____ to each other.

    (a) orthogonal   (b) parallel   (c) related   (d) not related

2. _____ is defined as the number of symbols transmitted per second.

    (a) Pulse rate   (b) Baud rate   (c) Nyquist rate   (d) Error rate

3. Idle channel noise is the coding noise measured at the receiver output with _____ transmitter input.

    (a) Infinite   (b) Zero   (c) one   (d) two

4. The process of converting continuous time signal to discrete time sequence is called as

    (a) Sampling   (b) Quantisation   (c) Encoding   (d) Decoding

5. The amount of ISI can be seen on an oscilloscope using an

    (a) eye Diagram   (b) Pie Diagram
    (c) interference diagram   (d) noise Diagram

6. Bandwidth efficiency depends on the following factor
   (a) Multilevel encoding
   (b) spectral shaping
   (c) both (a) and (b)
   (d) none of these

7. In binary PSK the two signals transmitted are called _____ signals.
   (a) Antipodal
   (b) Antipedal
   (c) orthogonal
   (d) diagnol

8. The number basis signals required in QPSK scheme is
   (a) Infinite
   (b) Zero
   (c) one
   (d) two

9. Slow frequency hopping means
   (a) One symbol = several hop
   (b) one hop=several symbol
   (c) several symbol = several hop
   (d) one symbol = one hop

10. The processing gain of a DS-SS is
    (a) $T_b/2T_c$
    (b) T_c/T_b
    (c) T_b/T_c
    (d) $2T_c/T_b$

PART - B (5 x 2 = 10 Marks)

11. Write short notes on channel classification. Give examples.

12. What are the two fold effects of quantizing process?

13. What are the measurements that can be obtained from eye pattern?

14. Define QAM and draw its constellation diagram.

15. Mention the significance of spread spectrum modulation.

PART - C (5 x 16 = 80 Marks)

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

Or

(b) Explain the geometric representation of signals.   (16)

17. (a) Explain the process of converting the peak-to-peak range of input sample values into a finite set of decision levels or decision thresholds in detail.   (16)

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(b) Explain with the help of block diagram that the Adaptive Delta modulation system reduces the slop error at the expense of quantization error? Draw the wave forms comparing the response of the ADM and linear DM. (16)

18. (a) What are optimum and matched filters? Find their transfer functions. Is it true that in matched filter error probability depends on signal energy and not on wave shape? Explain. (16)

Or

(b) Explain the invariance of probability of error translation and rotation in detail. (16)

19. (a) Explain the generation and detection of binary PSK. Also derive the probability of error for PSK. (16)

Or

(b) Explain non coherent detection methods of binary frequency shift keying scheme.

(16)

20. (a) (i) Briefly explain the generation of PN sequence with the properties of maximum length sequence. (8)

(ii) Write notes on Anti jam characteristics. (8)

Or

(b) Explain about the Frequency Hop-Spread Spectrum system in detail. (16)

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