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

Question Paper Code: 45401

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

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. Noise figure measures the

   (a) Power degradation (b) Noise degradation
   (c) SNR degradation (d) None of these

6. Bandwidth efficiency depends on the following factor

(a) Multilevel encoding (b) spectral shaping

(c) both (a) and (b) (d) none of these

7. The coherent modulation techniques are

(a) PSK (b) FSK (c) ASK (d) all the above

8. Which modulation scheme is also called as on-off keying method?

(a) ASK (b) FSK (c) PSK (d) GMSK

9. Pseudorandom signal _____ predicted.

(a) Can be (b) Cannot be (c) Both (a) and (b) (d) None of these

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. Define sampling theorem.

12. List down the advantages and disadvantages of digital communication.

13. What do you mean by the term Eye pattern?

14. Define QAM and draw its constellation diagram.

15. What is meant by frequency hop and types of hopping systems?

PART - C (5 x 16 = 80 Marks)

16. (a) Explain about the analog pulse communication systems. (16)

Or

(b) Explain the mathematical models of communication channel. (16)

17. (a) Explain any two encoding methods for analog sources. (16)

Or

(b) Explain in details about Quantization noise and signal to noise ratio. (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 operation of Detection-Maximum Likelihood Detector using signal constellation diagram. (16)

19. (a) Compare the performance of various coherent non-coherent digital detection systems. (16)

Or

(b) Explain non coherent detection methods of binary frequency shift keying scheme. (16)

20. (a) Summarize the transmitter and receiver of direct sequence spread coherent phase shift keying and obtain the derivation for processing gain. (16)

Or

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

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