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**Question Paper Code: 45401**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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. What is necessary for digital communication?
  - (a) Precision timing
  - (b) Frame synchronization
  - (c) Character synchronization
  - (d) All the above
2. Disadvantages of Digital Communication System is
  - (a) Increased bandwidth
  - (b) Reliable communication
  - (c) Easy multiplexing
  - (d) Integration of transmission and switching
3. The process in which the top of each pulse in the output samples retains the shape of the analog segment is called as
  - (a) Natural sampling
  - (b) Ideal sampling
  - (c) Aliasing
  - (d) none of these
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. What is symbol rate packing?
- (a) Maximum possible symbol transmission rate
  - (b) Maximum possible symbol receiving rate
  - (c) Maximum bandwidth
  - (d) Maximum ISI value allowed
7. Which modulation scheme is also called as on-off keying method?
- (a) ASK
  - (b) FSK
  - (c) PSK
  - (d) GMSK
8. The coherent modulations techniques are
- (a) PSK
  - (b) FSK
  - (c) ASK
  - (d) All the above
9. Pseudorandom signal \_\_\_\_\_ predicted.
- (a) Can be
  - (b) Cannot be
  - (c) Both (a) and (b)
  - (d) None of these
10. The properties used for pseudorandom sequence are
- (a) Balance
  - (b) Run
  - (c) Correlation
  - (d) All the above

PART - B (5 x 2 = 10 Marks)

11. Write short notes on channel classification. Give examples.
12. What is a sampling unit?
13. What is Inter Symbol Interference (ISI)?
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) Draw the block diagram of digital communication systems and explain each block in detail. (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) Define Inter-symbol interference? Obtain the nyquist criteria for Distortion less Base-band binary transmission system. (16)

Or

(b) Explain the operation of Detection-Maximum Likelihood Detector using signal constellation diagram. (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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