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**Reg. No. :**

**Question Paper Code: 45041**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

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. Equalization process includes

 (a) Maximum likelihood sequence estimation (b) Equalization with filters (c) Both (a) and (b) (d) None of these

6. The amount of ISI can be seen on an oscilloscope using an \_\_\_\_\_\_\_

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

7. The number basis signals required in QPSK scheme is \_\_\_\_\_\_\_\_.

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

8. The coherent modulation techniques are

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

9. The properties used for pseudorandom sequence are

(a) Balance (b) Run (c) Correlation (d) All the above

10. Slow frequency hopping means\_\_\_\_\_\_\_\_\_\_\_

 (a) One symbol = several hop (b) one hop=several symbol

 (c) several symbol = several hop (d) one symbol = one hop

PART - B (5 x 2 = 10 Marks)

11. Explain in brief about channel classification with some examples.

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

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

14. Sketch the Signal space diagram of coherent QPSK.

15. Define a frequency hop spread spectrum.

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 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)

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 in details about Maximum likelihood decoding rule. (16)

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

Or

(b) Discuss the various features of QAM in detail, derive its spectral characteristics. (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) Classify the detail about the various types of Frequency Hop Spread Spectrum.

 (16)