Register Number.....

B.TECH. DEGREE EXAMINATIONS: NOVEMBER 2009

Third Semester

INFORMATION TECHNOLOGY

U07IT301: Principles of Communication

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. Over Modulation

   (a) m = 0 (b) m = 1 (c) m > 1 (d) m ≠ 1.

2. The power and current in the antenna are related by

   (a) $P = I^2 R$ (b) $P = IR^2$ (c) P = IR (d) P = $P = \frac{I^2}{R}$.

3. Boosting of higher modulating frequencies at the transmitter is called _____.

   (a) De emphasis (b) Pre-emphasis (c) PLL – FM (d) Foster – Seely discriminator.

4. State carson's rule of FM hand width

   (a) $Bw = 2(\delta * f_m(\max))$ (b) $Bw = 2(\delta + f_m(\max))$

   (c) $Bw = (\delta - f_m(\max))$ (d) $Bw = \delta + f_m(\max)$.

5. The amplitude shift keying is also called _____.

   (a) On – Off keying (b) PSK (c) DASK (d) DPSK.

6. Bandwidth of FSK signal

   (a) $Bw = 3f_b$ (b) $Bw = 6f_b$ (c) $Bw = 2f_b$ (d) $Bw = 4f_b$.

7. The number of quantization level is 512. Calculate final bit rate.

   (a) 8 bits (b) 18 bits (c) 10 bits (d) 9 bits.

8. Signal to noise ratio in PCM is _____.

   (a) Poor (b) Fair (c) Good (d) Better than DM.

9. Bit rate is 1 Kbps, chip rate is 1 Mbps. Calculate length of PN sequence.

   (a) 1000 (b) 100 (c) 10,000 (d) 10.

10. The shape of auto correlation function of PN sequence is _____.

    (a) Rectangular (b) Triangular (c) Square (d) Circle.

PART B (10 x 2 = 20 Marks)

11. What is Modulation index?

12. Distinguish between high level and low level modulation.
13. What are the advantages of FM over AM?
14. Define Deviation ratio.
15. What is meant by coherent reception?
16. Draw geometric representation of PSK.
17. What is the relation between signaling rate and bandwidth?
18. How quantization error can be reduced?
19. List the properties of pseudo noise sequence.
20. Where spread spectrum is used?

PART C (5 x 14 = 70 Marks)

21. a) Draw the block diagram of super heterodyne Radio receiver and explain Operation. What are the advantages of this receiver?

(OR)

b) (i) Derive the equation of AM wave.

(ii) Explain the function of collector modulator with help of circuit diagram.

22. a) Briefly explain about indirect FM Transmitter.

(OR)

b) (i) Comparison between Amplitude modulation and frequency modulation.

(ii) Discuss about the FM Receiver.

23. a) A Briefly explain the differential phase shift keying.

(OR)

b) Explain the Quadrature Amplitude Shift Keying.

24. a) Briefly explain the delta modulation.

(OR)

b) Write short notes on PCM.

25. a) Briefly explain the Multiple Access Technique.

(OR)

b) (i) Distinguish between slow frequency hopping and fast frequency hopping.

(ii) Explain the operation of hop spread spectrum with help of block diagram.

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