

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act,1956)

Course & Branch: B.E/B. Tech – CSE/IT

Title of the paper: Principles of Communication Engineering

Semester: III

Max. Marks: 80

Sub.Code: 511307/512307

Time: 3 Hours

Date: 22-11-2006

Session: FN

PART – A

(10 x 2 = 20)

Answer ALL the Questions

1. Define vestigial side band modulation.
2. State any two advantages of superheterodyne receiver.
3. Draw the block diagram of FM receiver.
4. Define the modulation index of frequency modulation.
5. State sampling theorem.
6. What do you understand quantization error?
7. Define ISI.
8. Give the probability of error of non-coherent binary PSK system.
9. Define entropy.
10. State Shannon's Fano coding.

PART – B

(5 x 12 = 60)

Answer ALL the Questions

11. Write down the AM equation and explain each term with the help of frequency spectrum and also obtain an expression for its power saving and efficiency.

(or)

12. Explain the principle of operation of a balanced modulator for generating DSB – AM and also explain how the same circuit can be used for generating AM.

13. Let the modeling signal be $e_m = E_1 \cos w_1 t + E_2 \cos w_2 t$ and the carrier signal's $e_c = E_c \sin(w_c t + \theta)$. Obtain an expression for the frequency modulated wave and its spectrum.

(or)

14. Draw and explain the principle and working of Foster-Seeley discriminator for FM deflection.

15. Explain with a suitable diagram the generation of PPM signal and explain how these signals are demodulated. Derive an expression for SNR.

(or)

16. Discuss on the quantization process in PCM. Explain the delta modulation system and compare it with PCM.

17. Compare ASK, FSK and PSK in terms of bandwidth requirement and applications.

(or)

18. Draw the block diagrams of QPSK transmitter and receiver and explain the working,

19. Explain the frequency hopping spread spectrum system with appropriate example.

(or)

20. Describe the following:

- (a) Entropy of continuous and discrete channel
- (b) Convolution codes.