

18. The compressor and expander together is called _____.
 (a) Sampler (b) Quantizer (c) Compander (d) None of the mentioned 1 K1 CO6
19. Which of the following is/are the basic operation(s) performed in the transmitter of a PCM?
 (a) Sampling (b) Quantising (c) Encoding (d) All of the mentioned 1 K1 CO6
20. The original message signals in frequency division multiplexing are recovered by using individual _____.
 (a) LPF (b) BPF (c) Modulators (d) Demodulators 1 K1 CO6

PART - B (10 × 2 = 20 Marks)

Answer ALL Questions

21. A transmitter radiates 9 kW without modulation and 10.125 kW after modulation. Determine depth of modulation. 2 K2 CO1
22. Define modulation index of AM systems. 2 K1 CO1
23. Compare Narrow band and Wide band FM. 2 K2 CO2
24. Analyze the bandwidth required for a FM wave in which the modulating frequency signal is 2KHz and the maximum frequency deviation is 12KHz. 2 K2 CO2
25. What are the applications of phase-locked loops? 2 K1 CO3
26. Define Coherent Detection. 2 K1 CO3
27. Describe white noise. Give its characteristics. 2 K1 CO4
28. List out the property of power spectral density. 2 K1 CO4
29. Define threshold effect. 2 K1 CO5
30. Compare PPM and PWM. 2 K2 CO6

PART - C (6 × 10 = 60 Marks)

Answer ALL Questions

31. a) An AM wave consists of the following components : 10 K2 CO1
 Carrier component = 5 V peak value
 Lower sideband component = 2.5 V peak value
 Upper sideband component = 2.5 V peak value
 If the AM wave drives a 2 kΩ resistor, find the power delivered to the resistor by (i) Carrier (ii) Lower sideband component and (iii) Upper sideband component. What is the total power delivered?
- OR**
- b) Construct the balanced modulator circuit for the generation of DSB-SC-AM and explain its operation. 10 K2 CO1
32. a) A 25 MHz carrier is modulated by a 400 Hz audio sine wave. If the carrier voltage is 4V and the maximum frequency deviation is 10 kHz, write down the voltage equation of the FM wave. 10 K2 CO2
- OR**
- b) Explain how FM wave is generated by Armstrong method. 10 K2 CO2
33. a) Explain the working principle of super heterodyne receiver with neat block diagram. 10 K2 CO3
- OR**
- b) Demonstrate the concepts of envelope detection for demodulation of AM and explain its operation. 10 K2 CO3
34. a) Describe in detail various sources of noise. 10 K2 CO4
- OR**
- b) Explain the term mean, correlation, covariance and ergodicity 10 K2 CO4

35. a) Explain the significance of Pre-emphasis and De-emphasis circuit on SNR improvement in FM system. 10 K2 CO5

OR

b) What is narrowband noise? Discuss the properties of in-phase and Quadrature components of a narrowband noise. 10 K2 CO5

36. a) Compare the concept of uniform and non-uniform Quantisation in digital communication system. 10 K2 CO6

OR

b) Explain the operation of Pulse Code Modulator with neat block diagram. 10 K2 CO6