

- (vii) In a communications system, noise is most likely to affect the signal
- a) at the transmitter
 - b) in the channel
 - c) in the information source
 - d) at the destination
- (viii) Which of the following is not a part of analogue communication?
- a) PPM
 - b) AM
 - c) PCM
 - d) PWM
- (ix) Thermal noise is independent of _____.
- a) Bandwidth
 - b) temperature
 - c) center frequency
 - d) Boltzmann constant
- (x) Thermal noise power is proportional to _____.
- a) B
 - b) $1/(B^2)$
 - c) B^2
 - d) None of these
- (xi) Quantization noise occurs in
- a) time division multiplexing
 - b) frequency division multiplexing
 - c) pulse code modulation
 - d) pulse frequency modulation
- (xii) In the VSB system-
- a) picture and sound carrier are transmitted
 - b) only sound carrier is transmitted
 - c) only picture carrier is transmitted
 - d) none of these
- (xiii) Define total transmitted power of AM
- a) $P_c + P_s$
 - b) $P_c + m$
 - c) $m + P_s$
 - d) $P_c + m^2$
- (xiv) Medium which sends information from source to receiver is called _____.
- a) Transmitter
 - b) Transducer
 - c) Loudspeaker
 - d) Channel
- (xv) What are the three steps in generating PCM in the correct sequence?
- a) sampling, quantizing & encoding
 - b) encoding, sampling & quantizing
 - c) sampling, encoding & quantizing
 - d) quantizing, sampling & encoding

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Compare FM wave with PM wave. (3)
3. Write short note on thermal noise (3)
4. State Sampling theorem. Explain aliasing effect and how it is reduced? (3)
5. Differentiate between PAM, PWM and PPM signals. (3)
6. In FM signal, a carrier signal is frequency modulated with a sinusoidal signal of 2 KHz resulting in a maximum frequency deviation of 5 KHz. Find the band width and modulation factor. (3)

OR

- In FM signal, a carrier signal is frequency modulated with a sinusoidal signal of 6 KHz resulting in a maximum frequency deviation of 15 KHz. Find the band width and modulation factor. (3)

Group-C

(Long Answer Type Questions)

5 x 8=40

7. A certain transmitter radiates 10 KW with unmodulated carrier and 12 KW when the carrier is sinusoidally modulated. Calculate the modulation index. If another sine wave corresponding to 50% modulation is transmitted simultaneously, determine the total radiated power. (5)
8. With the help of block diagrams explain the transmitter and receiver of pulse code modulation. (5)

9. What do you mean by quantization and quantization error in communication system? (5)
10. Explain how you can calculate noise figure in terms of signal to noise ratio for amplifier. (5)
11. For a sinusoidal signal $A \cos \omega t$, find the condition for no slope overload, if step size is Δ & sampling period is T_s . (5)
12. A modulated voltage is represented by the expression $V = 15 [1 + 0.75 \cos (2\pi \times 10^3 t)] \sin (2\pi \times 10^7 t)$ volt Find i) Depth of modulation ii) Angular frequency of carrier signal iii) Period of message signal iv) Peak instantaneous value of voltage of modulated wave. (5)
13. An FM transmitter sends out a 200 MHz carrier wave frequency modulated by 30 KHz sinusoidal audio signal, The maximum frequency deviation is 50 KHz. Find the modulation index and bandwidth. (5)
14. Compare and contrast PCM, DM and ADM. (5)

OR

Present comparative study of BASK, BPSK and BFSK signals. (5)
