

- c) 0.08541666666666665
 (ix) Ring modulator is generally used for_____.
- a) generating SSB-SC signal
 b) generating DSB-FC signal
 c) generating DSB-SC signal
 d) none of these
- (x) When the modulating frequency is doubled, the modulation index is halved, and the modulating voltage remains constant. The modulation system is called_____.
- a) amplitude modulation
 b) phase modulation
 c) frequency modulation
 d) any of three
- (xi) The biggest disadvantage of PCM is_____.
- a) its inability to handle analog signals
 b) the high error rate which its quantizing noise introduces
 c) its incompatibility with TDM
 d) the large bandwidths that are required for it
- (xii) Define PAM
- a) analog pulse modulation
 b) digital pulse modulation
 c) binary pulse modulation
 d) none
- (xiii) Which of the following is considered as an AM signal?
- a) BPSK
 b) DPSK
 c) Differential encoded PSK
 d) QPSK
- (xiv) One of the following system is analog_____.
- a) PCM
 b) DM
 c) DPCM
 d) PAM
- (xv) Shot noise is produced by_____.
- a) Electrons
 b) Photons
 c) Electrons & Photons
 d) none of these

Group-B

(Short Answer Type Questions)

3 x 5=15

2. A certain transmitter radiates 12 KW with unmodulated carrier and 15 KW when the carrier is sinusoidally modulated. Calculate the modulation index. If another sine wave corresponding to 25% modulation is transmitted simultaneously, determine the total radiated power. (3)
3. Write short note on flicker noise. (3)
4. With neat block diagram, explain the reception of Delta Modulation. (3)
5. Briefly explain Pulse Amplitude Modulation. (3)
6. The carrier wave is represented by the equation . Draw the wave form of an AM wave for $m=0.5$ (3)

OR

Draw the waveforms at input and output of an envelope detector

(3)

Group-C

(Long Answer Type Questions)

5 x 8=40

7. Draw the circuit diagram of balanced slope detector and explain its operation. (5)
8. Discuss the effects of thermal noise on power, voltage and current in electronic systems (5)
9. With the net block diagram explain the principle of SSB-SC generation by phase shift method. (5)
10. With the help of block diagrams explain the transmitter and receiver of pulse code modulation. (5)
11. With the help of neat circuit diagram, explain the operation of an envelope detector. (5)

12. When and why are modulation and demodulation required? (5)
13. In FM signal, a carrier signal is frequency modulated with a sinusoidal signal of 4 KHz resulting in a maximum frequency deviation of 10 KHz. Find the band width and modulation factor. (5)
14. Derive the relations for sampling rate and transmission bandwidth in PCM system. (5)

OR

What are the disadvantages of delta modulation? Explain all and also explain how these disadvantages are removed? (5)
