

Q-2 Do as Directed. (Fill in the blanks and True/False) (08)

1. The highest modulation frequency typically used in FM broadcast is _____.
(5 KHz / 15 KHz)
2. Very low frequency range extends from _____. (10-30 KHz / 3-30 MHz)
- 3: The function of the _____ is to extract the original modulating voltage from the frequency modulated voltage. (FM detector / AM detector)
4. Germanium diode operates in _____ condition. (Reverse bias / Forward bias)
5. In Capacitor, the empty space between the plates is filled with a non-conductive material or electric insulator or dielectric region. (True / False)
6. The Linear diode detector uses the rectification property of Diode. (True / False)
7. Long distance radio communication is possible through the sky wave propagation. (True / False)
8. The Surface wave is that part of the radio wave which travels along the surface of earth. (True / False)

Q-3 Answer in short. (Any Ten) (20)

1. Explain definition of modulation with equation of carrier voltage.
2. Explain frequency modulation.
3. Explain the cosmic noise.
4. Differentiate Resistance, Reactance and Impedance.
5. What are the advantages of Collector modulation over base modulation?
6. Give the classification of frequency modulation.
7. Give the types of FM detector.
8. Draw the basic circuit of Reactance FET.
9. Draw the circuit diagram of Frequency modulator using varactor diode.
10. Explain the basic function of the Antenna.
11. Explain propagation of EM waves.
12. The magnitude of space wave and surface wave both are affected by which factor?

Q-4 Answer the following question (Any Four) (32)

1. Explain block diagram of superhetrodyne broadcast receiver in detail.
2. Define Amplitude modulation. Derive the expression for the amplitude modulated voltage with necessary diagram.
3. Describe the working of Linear diode detector with proper circuit diagram.
4. Draw the circuit diagram of square law diode modulation and explain in detail.
5. Explain Reactance FET method with necessary diagram and derive an expression for effective capacitive C_e .
6. Explain slope detector with necessary diagram.
7. Write a short note on: sky wave propagation.
8. Explain function and process of antenna action with necessary diagrams.