

Home Work # 6

1. Explain fully the difference between frequency and phase modulation, beginning with the definition of frequency modulation.
2. Of the various advantages of FM over AM, identify and discuss those due to the intrinsic qualities of frequency modulation.
3. What is pre-emphasis? Why is it used? Sketch a typical pre-emphasis circuit and explain why de-emphasis must be used also.
4. What is the function of the balanced modulator in the Armstrong modulation system?
5. A 500-Hz modulating voltage fed into a PM generator produces a frequency deviation of 2.25 kHz. What is the modulation index? If the amplitude of the modulating voltage is kept constant, but its frequency is raised to 6 kHz, what is the new deviation?
6. When the modulating frequency in an FM system is 400 Hz and the modulating voltage is 2.4 V, the modulation index is 60. Calculate the maximum deviation. What is the modulation index when the modulating frequency is reduced to 250 Hz and the modulating voltage is simultaneously raised to 3.2 V?