Communication Engineering (ECPC-205)
Test-II (23.10.204)

Time: 50 Minutes M.M.: 15

Q1.

(a) Draw the circuit diagram of an AM wave generator and explain it's working principle.

(b) A transmitter radiates 19 kW power without modulation and 21.75 kW after modulation. Calculate the following (i) depth of modulation. (ii) power in USB, and (iii) power in LSB. (3+3)

Q2. Draw the circuit block diagram of (i) a phase discriminator for generating SSB wave, (ii) Ring modulator. (iii) square law demodulator, and (iv) a narrowband FM generator. (4)

Q3.

(a) Define frequency modulation. Derive the expression of FM signal using Bessel's function for the carrier signal $e_c(t) = A_c\cos(2\pi f_c t)$ and message signal $m(t) = A_m\cos(2\pi f_m t)$.

(b) The frequency deviation produced on a 100 MH_z carrier by a 500 H_z signal is 50 KH_z. Determine the angle of phase advance and retardation produced by this signal. Also, determine the frequency deviation that would be produced by a signal of equal amplitude but of frequency 100 H_z on same carrier. (2½+2½)