B.Tech II Year 4rth Semester

Year(2022)

Branch ECE

Subject : Communication System **CT-2st Paper**

Time : 1 Hour **M.M : 20**

Note : Attempt All question

Que 1: Derive the pre-detection signal to noise ratio of the DSB-SC system with the help of suitable block diagram. (5)

Que 2: Determine the carrier frequency, and the maximum deviation for an FM wave f(t) = 15sin(8 x 10^8t + 6 sin1300t). What is the power dissipated by this FM wave ina a 12Ω resistor? Assume the modulation index β to be 3. (5)

Que 3: A bin contains three oscillator microchips, marked O_1 , O_2, O_3, and two PLL microchips, marked P_1, P_2, .Two chips are picked randomly in succession without replacement.

(a) How many outcomes are possible (i.e., how many points are in the sample space?) List all the outcomes and assign probabilities to each of them.

(b)Express the following event as unions of the outcomes in part (a): (i) one chip drawn

Is marked oscillator and the other PLL (ii) both chips are PLL; (iii) both chips are oscillators; and

(iv) both chips are of the same kind. Assign probabilities to each of these events. (5)

Que 4: Prove Sampling theorem with the help of a figure of a sampled signal and its Fourier spectra. (5)