Quals Question – 2008
Prof. A. Paulraj

Consider y(t) a sum of three (A, B and C) continuous sine (or CW) waves

$$y(t) = a1 \sin(2\pi f1\, t + p1) + a2 \sin(2\pi f2\, t + p2) + a3 \sin(2\pi f3\, t + p3); \quad t = [0, 1] \text{ sec}$$

Let f1 = 2 , f2 = 4 and f3 = 3.3 Hz/ Sec

Questions:

1. Sketch y(t) if a1= a2= 1 v and a3=0. p1=p2=p3=0 degrees

2. Sketch y(t) if a1= 1 v, a2= 0.5 v and a3= 0.5 v. p1= 0 , p2= 90 and p3=180 degrees

3. If a1 = 1 v and a2=a3= 0 v, how can you picture this signal in the frequency domain, can you device a some kind of Fourier transform (say DFT ?) that will reveal the frequency information properly