Alok Kumar

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATION- Feb 2018
B.Tech IV Semester(ECE)

COURSE CODE: 17B11EC412 MAX. MARKS: 15
COURSE NAME: Analogue and Digital Communications
COURSE CREDITS: 4 MAX. TIME: One Hr

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

Q1) Define unit impulse function? Write two property of impulse function. [2]

Q2) What is modulation? Why modulation is necessary in communication system? [2]

Q3) Find the transmission efficiency in SSB-SC with respect to DSB-SC when modulation index is 30%. [2]

Q4) Explain the working of switching modulator to generate the AM wave. [3]

Q5) A 2 MHz sinusoidal carrier is amplitude modulated by a symmetrical square wave of period 200 μsec. Find out which frequencies will be present in the modulated signal? [3]

Q6) A DSB-SC signal is to be generated with a carrier frequency $f_c = 1MHz$ using a non-linear device with the input-output characteristic $V_o=a_0v_i+a_1v_i^3$ where a_0 and a_1 are constants. The output of the non-linear device can be filtered by an appropriate band-pass filter. Let $V_i = A_c^i Cos(2\pi f_c^i t) + m(t)$ where m(t) is the message signal. Then find the value of f_c^i (in MHz)? [3]