

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST - 1 EXAMINATION, February 2020B.Tech IVth Semester (ECE)

Course Code: 18B11EC413

Course Name: Modern Analog and Digital Communication

Course Credits: 04

MAX. MARKS: 15

MAX. TIME: 1-Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated in square brackets against each question.

- Q1.** a) Define modulation. [1] [CO1]
b) Explain the need of modulation. [2]
c) Draw and explain the basic block diagram of analog communication systems. [2]
- Q2.** a) Calculate the power content of an AM signal with carrier power 100 kW [1] [CO1, CO2]
having 60% modulation.
b) Explain any one modulator for the generation of AM signal with the help of [2]
proper circuit representation.
c) Explain the generation of SSB-SC signal with the help of suitable block [2]
diagram and expressions.
- Q3.** a) Find the frequency deviation and bandwidth of FM signal given by [1] [CO1, CO2]
 $10 \cos(2\pi \times 10^6 t + 5 \sin(6\pi \times 10^3 t))$.
b) Prove that the bandwidth of an FM wave is infinity. [2]
c) Explain PLL-FM demodulator. [2]