JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATION- SEPTEMBER 2017
B.Tech Vth Semester (CSE & IT)

COURSE CODE: 10B11EC514 MAX. MARKS: 15
COURSE NAME: COMMUNICATION SYSTEMS
COURSE CREDITS: 4 MAX. TIME: 1 Hrs.

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

Q1 (a). Draw the block diagram of communication system. **(1)**

Q1 (b). Why modulation is required in communication systems? **(2)**

Q2. Discuss the generation of SSB-SC signal using Filter method. And discuss its limitations in detail. **(1+2 =3)**

Q3. Derive the condition for RC time constant in the AM envelope detection method. **(3)**

Q4. Compare AM, DSB-SC, SSB-SC, and VSB-SC. **(3)**

Q5. An amplitude-modulated signal is given by:

$$\varphi_{AM}(t) = 5\cos(2\pi.10^6 t) + 2\cos(4\pi.10^3 t).\cos(2\pi.10^6 t) + 4\cos(6\pi.10^3 t)\cos(2\pi.10^6 t)\,volts$$

Find i) Sideband Power

ii) Efficiency

iii) Total Transmitted power

iv) Bandwidth of AM signal **(0.5+1+1+0.5=3)**