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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

T1 EXAMINATION – FEBRUARY 2019

B.Tech [CSE], V Semester {One to One}

COURSE CODE: 10B11EC514

COURSE NAME: COMMUNICATION SYSTEMS

COURSE CREDITS: 04

MAX. MARKS: 15

MAX. TIME: 1 Hour

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

- Q1. (a) Why is the amplitude of modulating signal kept less than the amplitude of carrier wave? [1]
(b) Define modulation. What is the need of modulation in communication system? [2]
(c) A 400W carrier is modulated to a depth of 75%. Calculate the total power in the AM wave. [2]
- Q2. Explain the method of generating DSBSC signal. Plot DSBSC signal in time domain and frequency domain. [4]
- Q3. Consider the AM signal $\phi_{AM}(t) = A \cos(\omega_c t) + 2 \cos(\omega_m t) + 2 \cos(\omega_m t) \cos(\omega_c t)$. For demodulating the signal using envelope detector, find the minimum value of A. [2]
- Q4. Explain the operation of envelope detector with neat diagram and waveforms. Bring out the significance of the RC time constant of the circuit in detection of the message signal without distortion. [4]

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