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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- October-2019

B.Tech [ECE/CSE/IT], III/IV Semester

COURSE CODE: 10B11EC301

MAX. MARKS: 25

COURSE NAME: Signals and Systems

COURSE CREDITS: 04

MAX. TIME: 1.5 Hrs

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

- Q.1. (a) Find the Fourier transform of (i) $u(t)$ (ii) 1 (iii) $\delta(t)$ 03
(b) Write the properties of the Fourier transform with examples. 02
- Q.2 Find the Laplace transform of the following 10
(i) $tu(t)$
(ii) $\sin(\omega t)u(t)$
(iii) $e^{-bt}u(t)$
(iv) $\delta(t-1) + \delta(t) + \delta(t+1)$
- Q.3. Determine the Laplace transform and corresponding ROC of the signal: 05
 $x(t) = (e^{-t} + e^{-4t})u(t)$
- Q.4 A system is represented by a differential equation: 05
 $\frac{d^3y(t)}{dt^3} + 6\frac{d^2y(t)}{dt^2} + 11\frac{dy(t)}{dt} + 6y(t) = x(t)$, find the response of this system for input
 $x(t) = e^{-4t}u(t)$ {Using Laplace transform}