

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- September 2016

B.Tech III Semester

COURSE CODE: 10B11EC301

MAX. MARKS: 15

COURSE NAME: SIGNALS AND SYSTEMS

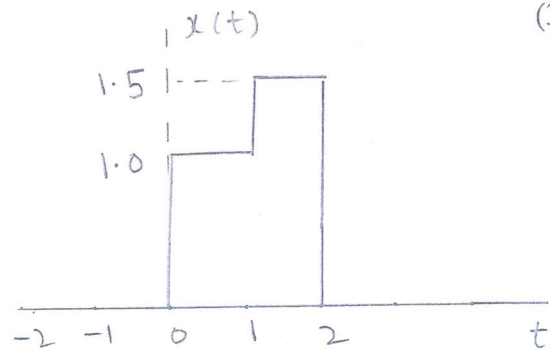
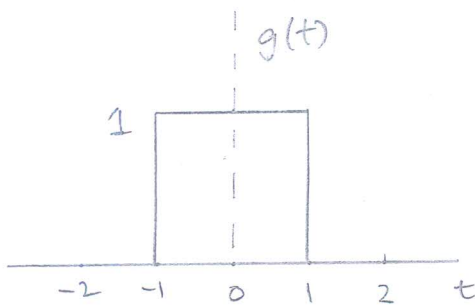
COURSE CREDITS: 03

MAX. TIME: 1Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated in parenthesis. Assume any missing data.

1. Plot the signal $x(t) = \cos(2\pi t)[u(t) \times u(2-t)]$ and specify whether this signal is energy signal or power signal. (3)

2. Express the signal $x(t)$ in terms of $g(t)$. (3)



3. Find the impulse response of an LTI system described by

$$y[n] - 1.5y[n-1] + 0.5y[n-2] = x[n]. \quad (2)$$

4. Find the convolution between $x(t) = e^{-2t}[u(t) - u(t-1)]$ and

$$h(t) = e^{-t}u(t+2). \quad (5)$$

5. The impulse response of an LTI system is given by $h[n] = -\left(\frac{1}{2}\right)^n u[-3-n]$. Specify whether this system is stable or unstable. Also specify whether this is causal or non-causal system. (2)