

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2021

B.Tech V Semester

COURSE CODE: 17B11EC513

MAX. MARKS: 35

COURSE NAME: NETWORK THEORY

COURSE CREDITS: 04

MAX. TIME: 2 Hours

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

1. What do you understand by convolution theorem? Find the output of the system with unit impulse response $h(t) = e^{-3t} u(t)$ at the given input $x(t) = e^{-2t} u(t)$.
2. Draw the following waveforms:
 - (a) $f(t) = 2u(t+4) - 5u(2t+5) + 2u(t-1) - 2u(t-3) + 3u(t-7)$
 - (b) $g(t) = f(2t+3)$
3. What do you understand by two-port network? Find the Z parameters for following two-port equation:

$$V_1 = V_2 + 5I_2$$

$$I_1 = 2V_2 - 3I_2$$

4. Determine if following polynomial $H(s)$ is Hurwitz Polynomial:

$$H(s) = s^4 + 3s^3 + 5s^2 + 5s + 2$$

5. What do you understand by Network synthesis? Write down the properties of LC immittance functions.
6. Write a brief note on:
 - (a) Final Value Theorem
 - (b) Step Response
7. Find the value of V_{th} and R_{th} for the given network in Fig 1:

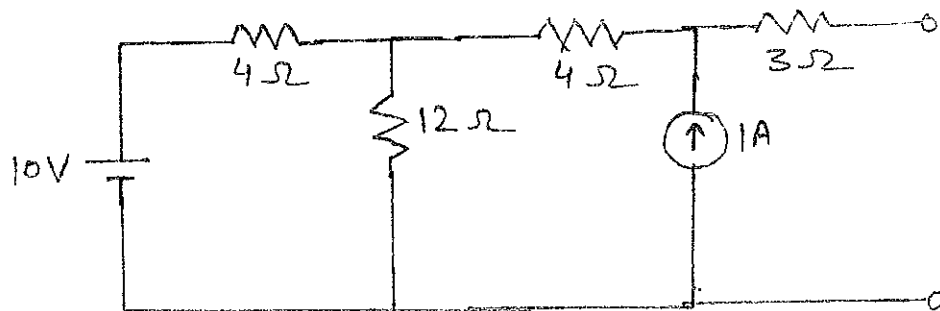


Figure 1