

# Digital Signal Analysis

## QUIZ-1

### Answer All Questions

1. State whether the below system is time invariance or linear or causal with explanation.

$$y(n) = x(n-1) + x(n+1) + y(n+1) + 2$$

2. Calculate linear convolution of  $x(n) = (1, 2, 3, 2)$  and  $h(n) = (2, 3, 2)$  using circuit convolution.
3. Calculate Nyquist sampling rate for signal  $x(t) = \cos(200\pi t) \cos(400\pi t)$ .
4. Calculate DFT using Decimation in Time FFT for  $x(n) = (1, 2, 3, 1, 2, 3, 4, 1)$ .
5. Calculate DTFT for  $x(n) = \left(\frac{1}{3}\right)^n u(n+3)$ .