

Institute of Engineering and Technology

DAVV INDORE

II YEAR (CS) (A&B)

Subject code –CER4G2, Subject Name – Digital Signal Processing

Time: 70 Minutes

Test # 1, March 2021

Maximum Marks: 20

Note: Attempt any four Questions and each Questions Carry equal marks.

Q.(1) Determine the linear convolution of two finite sequence

$$X[n] = \{5, 8, 3, 6, 2, 4\} ; h[n] = \{3, 7, 2, 9, 4, 8\}$$

Q.(2) Determine the following systems

$$(a) y(n) = x(n^2) \quad (b) y(n) = x^2(n) \text{ are linear or non linear}$$

Q.(3) Check for stability of signal

$$(a) y(t) = x^2(t) \quad (b) y(t) = x(t) \cos \omega t \quad (c) y(n) = 2x(n) + 2x(n+1)$$

Q.(4) Find the even and odd components of the following signals:

$$(a) x(t) = \sin 2t + \sin 2t \cos 2t + \cos 2t \quad (b) x(n) = \{-4, 2, 8, 5, 3, 7\}$$

Q.(5) Test the systems described by the following input/output equations are

(i) Time invariant or time varying (ii) causal or non causal

$$(a) y(n) = x(-n+2) \quad (b) y(n) = x(2n) \quad (c) y(n) = \cos[x(n)]$$