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T-2, Examination, October, 2019

B.Tech, ECE, V Semester

COURSE CODE: 10B11EC512

MAX. MARKS: 25

COURSE NAME: Digital Signal Processing

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 Find the output of a digital filter for the input $x(n) = \{3,3,3, 1,1,1,2,2,2,2\}$, if impulse response of a filter is $h(n) = \{1,1,1\}$.(using overlap save method) 05 [CO-3]
- Q.2 (a) Compute the 4-point IDFT of a sequence $x(n) = \{1,1, 1, 1\}$ using radix-2 DIT FFT algorithm. 10 [CO-2]
- (b) Compute the 4-point DFT of a sequence $x(n) = \{1,0, 0, 0\}$ using radix-2 DIF FFT algorithm.
- Q.3 Draw structure (direct form-II) of the second order filter $H(z) = \frac{1-b\cos\omega_0z^{-1}}{1-2b\cos\omega_0z^{-1}+b^2z^{-2}}$ 06 [CO-3]
- Q.4 Write in brief about the following-
- (a) Convolution 04
- (b) Correlation [CO-1]
- (c) Impulse response
- (d) Steps for analog signal to digital signal conversion