

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Test-2 Examination-April 2017

M.Tech. (E.C.E)

Course Code: 10M11EC211

Max. Marks: 25

Course Name: Advanced Digital Signal Processing

Max. Time: 1.5 HR.

Note: All questions are compulsory. Carrying of mobile phone during examination will be treated as case of unfair means. Marks are indicated in parenthesis.

1. Derive the relationship between DFT and z-transform. Obtain the DTFT from this relationship. (4)
2. Find the linear convolution and circular convolution between $x[n] = \{1,2,3\}$ and $h[n] = \{1,2,2,1\}$ using proper N-point DFT and IDFT. (6 marks)
3. Compute the 8-point DFT for the signal $x[n] = \begin{cases} 1, 0 \leq n \leq 7 \\ 0, \text{otherwise} \end{cases}$ using the decimation in frequency FFT algorithm. (5)
4. Obtain the filter response for a linear phase FIR with anti-symmetry for odd number of samples in $h[n]$. Give the locations of the poles for this type filter. (5)
5. Explain in detail about the IIR filter design methods. (5)