JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATION- September 2016
B.Tech 5th Semester

COURSE CODE: 10B11EC512   MAX. MARKS: 15

COURSE NAME: Digital Signal Processing

COURSE CREDITS: 04   MAX. TIME: 1Hr

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

Q.1	Determine the z-transform of the following signals (Use property of z-transform) (a) $x(n) = n(-1)^n u(n)$ (b) $x(n) = n^2 u(n)$ (c) $x(n) = 4^n u(-n)$ (d) $x(n) = -4^{n-1} u(n-1)$	2
Q.2	Calculate the circular convolution of the sequences $x(n) = \{1, 2, 3, 1\}$ and $h(n) = \{4, 3, 2, 2\}$ {Use matrix methods}.	2
Q.3	Determine the eight point DFT of the sequence $x(n)=\{1, 1, 1, 1, 1, 1, 0, 0\}$	4
Q.4	Find the linear convolution of the sequences using graphical method $x(n) = \begin{cases} \dfrac{n}{3} & 0 \le n \le 6 \\ 0, otherwise \end{cases}$ and $x(n) = \begin{cases} 1 & -2 \le n \le 2 \\ 0, otherwise \end{cases}$	4
Q.5	Find the IDFT of the sequence $x(k) = \{6, -2 + 2j, -2, -2 - 2j\}$	3