JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- September 2017

B.Tech Vth Semester

COURSE CODE: 10B11CI411   MAX. MARKS:15

COURSE NAME: Fundamentals of Algorithms

COURSE CREDITS: 04   MAX. TIME: One Hr

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

1. Solve the recurrence equation:

   $T(1) = 1$, $T(2) = 6$, and for all $n \geq 3$,
   $T(n) = T(n-2) + 3n + 4$

   [3 Marks]

2. Trace the Quick sort algorithm to sort the following list of numbers.
   8, 20, 9, 4, 15, 10, 7, 22, 3, 12 (mention the pivot of each iteration)

   [4 Marks]

3. Write a linear time algorithm to find kth minimum element.   [3 Marks]

4. Explain heap sort using array.   [5 Marks]