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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT  
TEST-2 EXAMINATION- (SUMMER) -2016  
B.Tech. II Semester

COURSE CODE: 10B11CI211  
COURSE NAME: Data Structures  
COURSE CREDITS: 4

MAX. MARKS: 50  
MAX. TIME: 2 HRS

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

**Q1.**

- (a) Write DFS algorithm, and explain with the help of an example.  
(b) Write Shortest path algorithm, and explain with the help of an example. [5x2=10]

**Q2.**

- (a) On which input data does the algorithm quick sort exhibit its worst-case behavior? Give the algorithmic steps for insertion sort.  
(b) Give the algorithmic steps for quick sort algorithm. [5x2=10]

**Q3.** Consider the following array:

Subscript	0	1	2	3	4	5	6	7
values	25	57	48	37	12	92	86	33

- (a) Build the max heap, show all iterations.  
(b) Write C code of heap sort algorithm and apply heap sort algorithm to above array show all iterations. [4+6=10]

**Q4.**

Construct the AVL tree for the following list: 3, 2, 1, 4, 5, 6, 7, 16, 15, 14. [10]

**Q5.**

Give the algorithmic steps for deletion of a node from a Binary Search Tree. [10]