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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- December, 2018

M. Tech I Semester

COURSE CODE: 10M11CI111 MAX. MARKS: 35

COURSE NAME: Advanced Data Structures

COURSE CREDITS: 3 MAX. TIME: Two Hours

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

Q1. (a) What is the idea behind splaying? Write novel characteristics for splay trees.

(b) Write applications for soft heap.

(c) Define Principles of locality.

(d) Discuss properties for heap?

(e) List variants for nearest neighbor search. **(2*5)**

Q2. (a) Insert sequence of keys using splay operation: 9, 2, 90, 53, 4, 64, 95, 59.

(b) Discuss the purpose for applying Amortized analysis on data structures? Explain in detail the major approaches for Amortized analysis. **(2, 6)**

Q3. (a) Why it is said that searching a node in a binary search tree is efficient than that of a simple binary tree?

(b) Mention the advantages of representing stacks using linked lists than arrays.

(c) What is the need for Priority queue?

(d) Differentiate BFS and DFS.

(e) State the rules to be followed during infix to prefix conversions. **(2*5)**

Q4. Differentiate Disk Access and cache oblivious model and compare their basic results? **(7)**