Puneet Jain

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
B.Tech- VII sem & M.Tech I sem, Test 3 (Dec. 2017)

Course Code: 10M11CI111 **Max. Marks: 35**
Course Name: Advanced Data Structure
Course Credit: 3 **Max. Time: 2:00 Hrs**

Attempt all questions. Carrying of mobile phones will be treated as the case of unfair means.

1. Write the properties of (a,b) tree. Derive the bounds of its I/O complexity for searching. Discuss the split and fusion methods and their I/O complexities. [3+3+ 4]

2. What is Buffer tree? Explain the Lazy query processing method of buffer tree. [2+4]

3. Discuss the problem of external memory matrix multiplication. Explain the cache-oblivious implementation in this regards. [2+4]

4. Explain the construction of R tree for special objects. How to construct internal MBR? Discuss the optimality issues for the insertion in R tree mentioning the case of optimal split. [2+2+3]

5. What is synopsis data structure? Describe the creation method and use of following synopsis data structures: [2+ (2x2)]
   a) Reservoir sampling
   b) Random sketches