

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- September 2016

B.Tech (VII)/ M.Tech (I)

COURSE CODE: 10M11CI111

MAX. MARKS: 15

COURSE NAME: Advanced Data Structure

COURSE CREDITS: 03

MAX. TIME: 1Hr

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

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MARKS [3 x 5 = 15]

1. What is amortized complexity? Compute the amortized complexity of a binary counter using potential method.
2. Let 500 be the size of an array, 200 numbers to insert in a bloom filter using 3 hash functions. Compute the probability of true positive, true negative, false positive and false negative.
3. Write short notes on cuckoo hashing. Derive its collision analysis using bipartite graph.
4. Splay 12, 6, 5, 11, 9, 7, and 10. (construct splay tree by inserting the numbers sequentially)
5. Compare the following data structures for searching in large data set.
  - a) Balanced BST
  - b) Link list
  - c) Skip list