

**R09**

Code: 9A05302

B.Tech II Year I Semester (R09) Supplementary Examinations June 2017

**ADVANCED DATA STRUCTURES**

(Common to ECC, CSS, IT &amp; CSE)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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- 1 (a) Write a C++ program that demonstrates how certain exception types are not allowed to be thrown.  
(b) Write short notes on copy constructor.
- 2 (a) Write a note on visibility of member functions based on private and protected derivations.  
(b) Explain stream classes and give stream classes for console operation.
- 3 (a) Write various operations of ADT Queue in C++.  
(b) Write an algorithm for reversing a given linked list. No additional nodes may be used.
- 4 Given input {4371, 1323, 6173, 4199, 4344, 9679, 1989} and a hash function  $h(x) = x \bmod 9$ . Show the resulting:  
(a) Separate chaining hash table.  
(b) Open addressing hash table using linear probing.  
(c) Open addressing hash table using quadratic probing.
- 5 Explain heap sorting with its algorithms for insertion and deletion of an element from a heap.
- 6 Construct binary search tree for 40, 11, 22, 30, 33, 40, 44, 55, 60, 66, 77, 80, 88, 99. Show the construction of tree stepwise. Also write the procedure to search for 44 and 100.
- 7 Write notes on the following:  
(a) Indexed balanced tree.  
(b) Indexed sequential access method.
- 8 Explain the following pattern matching algorithms:  
(a) Brute force algorithm.  
(b) Boyer-Moore algorithm.

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