

**R09****Code: 9A05302**

B.Tech II Year I Semester (R09) Supplementary Examinations June 2016

**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 to accept a 5 digit number and report whether it is divisible by 3, 5, 7, 9 or not.  
(b) What is access specifier ? Briefly discuss the different access specifiers in C++.
- 2 (a) What is class hierarchy? Explain how inheritance helps in building class hierarchies.  
(b) What is runtime polymorphism? Explain with suitable example.
- 3 (a) Write algorithms for ADT operations for inserting a node to the linked list.  
(b) Write algorithm for deleting a node from the linked list.
- 4 (a) What is the purpose of hashing? Describe any one method used to handle collisions in hashing.  
(b) Compare hashing with skip lists.
- 5 Explain the following with example:  
(a) Multiway merge.  
(b) Polyphase merge.
- 6 (a) Create binary search tree for the following data and show how to delete a node which has both left and right child. With same data: 50, 25, 75, 22, 40, 60, 80, 90, 15, 30.  
(b) Define AVL tree and write algorithms for insert and delete operations.
- 7 Explain the construction of splay trees with suitable example. Also write the algorithm for it.
- 8 Explain the following pattern matching algorithms:  
(a) Brute force algorithm.  
(b) Knuth-Morris-Pratt algorithm.

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