

Code No: C4001, C6301, C0501, C5801

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**M.Tech I - Semester Examinations, April/May - 2012**

**ADVANCED PROBLEM SOLVING**

**(COMMON TO INFORMATION TECHNOLOGY, IMAGE PROCESSING, COMPUTER SCIENCE, COMPUTER SCIENCE AND ENGINEERING)**

**Time: 3hours**

**Max. Marks: 60**

**Answer any five questions  
All questions carry equal marks**

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- 1.a) Compare and contrast Java arrays with vectors.  
b) Discuss exception handling in Java.
- 2.a) Explain the characteristics of algorithms.  
b) Prove the equality:  $6n^3 / (\log n + 1) = O(n^3)$ .
3. Briefly explain the linked representation of a linear list and also discuss operations on it.
- 4.a) Convert the following infix expression into postfix expression, trace the stack.  
 $((a * (b + c) + d) / (e + f))$   
b) Give a note on Priority Queue ADT.
- 5.a) Explain the common ways to traverse a binary tree.  
b) Draw the Huffman tree for the weights:  
2, 4, 5, 7, 9, 10, 14, 17, 18, 50.
- 6.a) Describe splay operation with an example tree.  
b) Is AVL tree a balanced search tree? Justify your answer.
- 7.a) Explain collision handling schemes.  
b) Make a comparison of searching methods.
- 8.a) Discuss graph traversal techniques.  
b) Explain Boyer Moore algorithm with a suitable example.

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