

FACULTY OF ENGINEERING

B.E. 2/4 (CSE) I-Sem. Suppl. Examination

May/June - 2008

Subject : Data Structures

Time : 3 hours]

[Max. Marks : 75

Note : Answer *all* questions of Part-A.

Answer *five* questions from Part-B.

PART - A (25 marks)

1. What are sparse Matrices ?
2. What is the difference between a static and dynamic memory allocation ?
3. Write an algorithm to implement bubble sort ?
4. Define Heap. What is the time complexity to convert a complete binary tree to Heap.
5. What are the application of Queue ?
6. What is recursive calls ? Which data structure is used in it ?
7. How many no. of edges should be there in a n element binary tree ?
8. What is an expression tree ? Draw a tree for the following expression $(x/(y-2)) * ((W+V)-U)$
9. Define Digraph and Bipartite graph.
10. What are the application of graphs ?

PART-B (5×10=50 marks)

11. Write an algorithm to insert an element any where in the list implemented using formula based representation. What is its time complexity ?

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12. Write an algorithm to evaluate an post fix expression.
13. Write an algorithm to implement merge sort.
14. Explain insertion and deletion of an element in B-tree.
15. Write a program for Breadth first search to traverse a directed graph. Explain with a diagram.
16. Write the algorithm for Iterative pre-order traversal of a binary tree.
17. Write short notes on :
 - (a) Simulatory pointers
 - (b) Minimum Spanning tree.
