

**Code No: 821AF****R15****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****MCA II Semester Examinations, August - 2017****DATA STRUCTURES AND ALGORITHMS****Time: 3hrs****Max.Marks:75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A****5 × 5 Marks = 25**

- 1.a) Describe recursion implementation on Stack. [5]
- b) Differentiate between tree and graph with an example. [5]
- c) What is folding? Explain with example. [5]
- d) What is B Tree order of m? Discuss briefly. [5]
- e) What is Greedy Method? Explain Briefly. [5]

**PART - B****5 × 10 Marks = 50**

2. Explain the following operations in Singly Linked List
  - a) Insert a node at end of the list
  - b) Delete a node from middle of the list. [5+5]
 OR
3. Explain the operations on Circular Queue with suitable example. [10]
4. Explain DFS Graph Traversal algorithm with example. [10]
- OR
5. Describe about Fibonacci Heaps with example. [10]
6. Explain Radix Sort with following example: 10,21,17,34,44,11,654,123 [10]
- OR
7. What is quick sort? Explain with following example:  
26,5,37,1,61,11,59,15,48,19 [10]
8. With an example explain the Insertion Operation of AVL tree. [10]
- OR
9. Construct a B Tree an order 5 with following example:  
1,12,8,2,25,6,14,28,17,7,52,16,48,68,3,26,29,53,55,45. [10]
10. Consider a set given jobs as (j<sub>1</sub>,j<sub>2</sub>,j<sub>3</sub>,j<sub>4</sub>,j<sub>5</sub>) with deadlines and profits (2,1,3,2,1) and profits (60,100,20,40,20). Find a sequence of jobs which will be completed within their deadlines and will give the maximum profit. [10]
- OR
11. Discuss about Single Source Shortest Path algorithm with suitable example.[10]

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