Code No: 113BP **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, February/March - 2016

DATA STRUCTURES

(Common to CSE, IT)

Time: 3 Hours **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 **(25 Marks)**

1.a)	Define Space Complexity.	[2]
b)	List and Explain types of Linked Lists.	[3]
c)	Write about recursion.	[2]
d)	Write and explain ADT for Deque.	[3]
e)	Write the ADT for Binary Tree.	[2]
f)	Differentiate between MaxHeap and MinHeap.	[3]
g)	Write the C logic for Linear Search.	[2]
h)	Explain in brief about Selection Sort.	[3]
i)	Define Splay Tree.	[2]
j)	Write the C Logic for Knuth-Morris-Pratt algorithm.	[3]

PART-B **(50 Marks)**

2.a)	Write about Asymptotic Notations.	
b)	Discuss about linked representation of Sparse Matrix.	[5+5]
	OR	
3.a)	What is Performance Analysis? Explain the Techniques.	
b)	Explain about Singly Linked Lists Operations.	[5+5]
4.a)	What is Stack ADT and explain the operations of Stack with neat Sketch?	
b)	Discuss about array and linked implementation in C.	[5+5]
	OR	
5.a)	Discuss about Circular queues operations.	
b)	Write a C program to implement stack using singly linked list.	[5+5]
6.a)	Describe the Properties of Binary Trees.	
b)	Write a C Program to implement BFS.	[5+5]
	OR	
7.a)	Explain about Binary Tree Representations.	
b)	Describe the Binary Tree Traversal Techniques.	[5+5]
8.a)	Write a C Program for Binary Search.	
b)	Define Hashing and explain Hash Tables without Linked List Mechanism.	[5+5]
	OR	
9.a)	Differentiate between Linear and Binary Search Methods.	
b)	Write a program for Merge Sort.	[5+5]

10.a) Explain about AVL tree with an example.
b) Discuss about Compressed Tries. [5+5]

OR

11.a) Write about Splay Trees.
b) Discuss about Binary Search Tree operations. [5+5]

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