R18

Code No: 153AK

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year I Semester Examinations, February -2024

DATA STRUCTURES

(Common to CSE, IT, ECM, CSBS, CSIT, ITE, CE(SE), CSE(CS), CSE(AI&ML), CSE(DS), CSE(IOT), CSE(N), AI&DS, AI&ML, CSD)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	List out the applications of a stack.	[2]
b)	What is an abstract data type?	[3]
c)	Explain insertion operation on a skip list.	[2]
d)	Explain any one hash function.	[3]
e)	What are the applications of splay trees?	[2]
f)	Insert following elements into an empty binary search tree: 3,4,7,1,13,8,22,34,9,10.	[3]
g)	What is external sorting?	[2]
h)	What are the applications of graph traversal methods?	[3]
i)	What is pattern matching?	[2]
j)	What is suffix trie? Provide an example.	[3]

PART – B

(50 Marks)

2. What is a queue? Give array and linked representations of queue. What operations can be performed on queue? Explain with examples. [10]

OR

3. Explain how stack can be used to evaluate an expression and write pseudo code for it. [10]

4. Explain rehashing and extendible hashing in detail. [10]

OR

5. How collision is resolved in hashing? Explain various collision resolution methods in detail. [10]

6. What is an AVL tree? Explain how height balancing is done in AVL trees. Give examples. [10]

OR

7. Write pseudocode for insert, delete and search operations on binary search trees. [10]

8. What is breadth first search? Explain with an example and write pseudocode for the same. [10]

OR

9. Simulate merge sort on the given data and write algorithm for mergesort.3,4,7,8,9,1,2,6. [10]

10. Explain Boyer –Moore algorithm. [10]

OR

11. Compare and contrast between Standard Tries and Compressed Tries. [10]

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