R18

Code No: 153AK

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B. Tech II Year I Semester Examinations, April/May - 2023 DATA STRUCTURES

(Common to CSE, IT, ECM, CSBS, CSIT, ITE, CE(SE), CSE(CS), 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)		,
1.a) b)	Give examples for stack. How to construct a queue using stacks?	[2] [3]
c)	What is a skip list?	[2]
d)	List the drawbacks of open addressing.	[3]
e)	What does the color notate in red-black tree?	[2]
f)	What operations are performed on Splay trees?	[3]
g)	What is a max heap?	[2]
h)	Give example for adjacency list of a graph.	[3]
i)	Define trie.	[2]
j)	What are the merits and temerits of brute force method for pattern matching	? [3]
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	PART – B	(#0.34 l.)
	10 Mile C	(50 Marks)
2.	Write and explain algorithms for Push and pop operations of stack using link OR	ted list.[10]
3.a)	Describe the conditions of overflow and underflow in a queue.	
b)	Discuss the applications of queues.	[5+5]
4.a)	Demonstrate skip list representation of a dictionary.	
b)	How to perform reassign operation on a dictionary.	[5+5]
	OR	
5.	Explain the algorithm for implementing quadratic probing on a hash table.	[10]
6 0)	Illustrate search energtion on hinery search tree	
6.a) b)	Illustrate search operation on binary search tree. Discuss the importance of height balanced trees for searching.	[5+5]
U)	OR	
7.a)	With suitable examples, illustrate right-left rotation on AVL tree.	
b)	Differentiate between splay tree and red-black tree.	[5+5]
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8.	Make a comparison of breadth first search and depth first search for a graph.	[10]
	OR	
9.	Write an algorithm for merge sort and explain with a suitable example.	[10]
10.	Describe the Knuth-Morris-Pratt algorithm for pattern matching.	[10]
	OR	
11.	"A compressed trie is an advanced version of the standard trie." Support or opport	se this
	statement with necessary explanation.	[10]

