GODAVARI INSTITUTE OF ENGINEERING & TECHNOLOGY (A), RJY

B. Tech (CSE-AIML) - 6 SEM (R) (A.Y.2022-23),(GRBT-20), END EXAM QUESTION PAPER

ADVANCED DATA STRUCTURES

CODE No. 201AI601; DATE: 01/05/2023:10.00 am to 01.00 pm

Duration: 3 Hrs | Max. Marks: 5 X 14=70

ANSWER ALL THE QUESTIONS
ALL QUESTIONS CARRY EQUAL MARKS

Q.No.	Question	Bloom's Taxonomy level	Course Outcomes	Marks
	UNIT-1			
1.1	a) Define Hashing? Explain different Collision resolution techniques.	L2	CO-1	7 M
	b) Explain about the skip list representation of dictionary with an example.	L2	CO-1	7 M
	(OR)			
1.2	a) Given input {2465, 1463, 1673, 5469, 1244, 6979, 8239, 1786} and a hash function h(x)=x%10, show the resulting: a. hash table using rehashing. b. hash table using linear probing. c. hash table using quadratic probing. d. hash table with second hash function h2(x)=7−(x mod 7)	L3	CO-1	7 M
	b) Develop algorithms for searching and inserting an element in skip lists and explain them with necessary examples.	L3	CO-1	7 M
	UNIT-2			
2.1	a) Create 2-3 tree from the following lists of data items. 92 24 6 7 11 8 22 4 5 16 19 20 78	L6	CO-2	7 M
	b) Explain insertion of the following elements into an empty AVL tree: 1, 2, 3, 4, 5, 6, 7, 8, 9, 8.5, 14 Draw the resulting tree after each insertion.	L4	CO-2	7 M
	(OR)			
2.2	a) Explain about deletion procedure in AVL tree with an example.	L2	CO-2	7 M
	b) Construct the maximum heap for the following data using priority queue: 1, 12, 3, 6, 5, 7, 16, 9, 8, 2, 10, 11	L3	CO-2	7 M
	UNIT-3			
3.1	a) Explain various representations of a graph with suitable examples.	L2	CO-3	7 M
	b) Explain Breadth First Search with an example.	L2	CO-3	7 M

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	(OR)			
3.2	a) Explain Depth First Search with an example.	L2	CO-3	7 M
	b) Explain different graph operations with an example.	L2	CO-3	7 M
	UNIT-4			
4.1	a) Explain Splay Trees with a suitable example.	L2	CO-4	7 M
	b) Explain insertion and deletion algorithms in Red-Black Trees with examples.	L2	CO-4	7 M
	(OR)			
4.2	a) Explain Red-Black Trees with a suitable example.	L2	CO-4	7 M
	b) Explain the insertion and deletion algorithms in splay trees with examples.	L2	CO-4	7 M
	UNIT-5			
5.1	a) Explain Pattern matching and Boyer-Moore algorithm with an example.	L2	CO-5	7 M
	b) Draw a standard and suffix trie for the following set of strings: { 011, 111, 101, 001 }	L6	CO-5	7 M
	(OR)			
5.2	a) Create a table representing the KMP failure function for the pattern string "cgtacgttcgtac".	L6	CO-5	7 M
	b) Define multi-way tries? What for it is used? Construct a muti-way tries.	L2	CO-5	7 M