ECE 181502							
Roll No	of candidate	В	NA OHO WIDELING COMMENTS OF AZORS, Hall 1991017				
	02/01/2023	2022	Azora, Hamilan - 781017				
	B.Tech. 5th Semester	End-T	erm Examination				
ELE, ETE, PEIE							
DATA STRUCTURE AND ALGORITHM							
	(New Reg & New syllabus)						
ALM PRINTED AND		x New s	yllabus)				
Full Ma	rks - 70		Time - Three hours				
	The figures in the m	argin in	dicate full marks				
for the questions.							
	Answer question No. 1	and an	y four from the rest.				
1. Answer the following (MCQ/Fill in the blanks): $(10 \times 1 = 10)$							
(i)	A link list is a						
	(a) Random access structure	(b)	Sequential access structure				
	(c) Both	(d)	None of these				
(ii)	Which type of linked list does no	ot store	NULL in next field?				
	(a) Singly linked list	(b)	Circular linked list				
	(c) Doubly linked list	(d)	All of these				
(iii	In a queue, insertion is done at						
	(a) Rear	(b)	Front				
	(c) Back	(d)	Тор				
(iv)	The circular queue will be full o	nly whe					
	(a) FRONT = MAX-1 and RE						
	(b) FRONT = 0 and REAR = Max-1						
	(c) FRONT = MAX-1 and REAR = 0						
	(d) FRONT = 0 and REAR = 0						

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	(v)	Degree of a leaf node is	
	(vi)	A binary tree of height h has at least h nodes and at most	– nodes.
	(vii)	Pre-order traversal is also called ———.	
		(a) Depth first (b) Breadth first	
		(c) Level order (d) In-order	
	(viii	Which rotation is done when the new node is inserted in the right su the critical node?	ib-tree of
		(a) LL (b) LR	LEWIT
		(c) RL (d) RR	
	(ix)	Every node in the B-tree except the root node and leaf node have children.	at least
	(x)	A graph with multiple edges and/or a loop is called a ———.	
2.	(a)	Define sorting. What is the importance of sorting?	(5)
	(b)	What are the different types of sorting techniques?	(5)
	(c)	Explain the difference between bubble sort and quick sort. Which one efficient?	e is more (5)
3.	(a)	Which technique of searching an element in an array would you pref and in which situation?	er to use (5)
	(b)	Sort the elements 77, 49, 25, 12,9, 33, 56, 81 using insertion selection sort.	sort and 5+5=10)
4.	(a)	Explain Prim's algorithm.	(5)
	(b)	Differentiate between depth-first search and breadth-first search tra	versal of (5)
	(c)	What is a graph? How are graphs represented inside a computer's	(5)
5.	(a)	Compare B trees with B+ trees	(5)
	(b)	List down the applications of B trees.	(5)
	(c)	How is an AVL tree better than a binary search	(5)

- 6. (a) Write an algorithm to insert an element at the beginning of the STACK. (5)
  - (b) Write an Algorithm to delete an element at the end of a singly linked list. (5)
  - (c) Differentiate between an queue and a stack. (5)
- 7. Write short notes any three.

 $(3 \times 5 = 15)$ 

- (a) Quenes
- (b) Circular linked list
- (c) Prim's algorithm
- (d) Huffman tree
- (e) File organisation

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