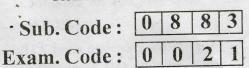
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B.C.A. 3rd Semester 1125 DATA STRUCTURES Paper-BCA-302

Time Allowed : Three Hours]

[Maximum Marks: 90

Note :- Attempt six questions in all. Attempt one question from each section and the entire compulsory question.

SECTION-A

- Define data structures. Explain its various operations. Also (a) 1. 2+3+2explain its applications.
 - Define and explain stacks and queues along with their memory (b) 4+4 representation.
- Define array. Why are they called basic data structures ? 2. (a) 2+2+4Explain its various operations.
 - Define complexity. How is it measured ? Explain various (b) 1+1+5notations along with examples.

SECTION-B

- What is linked-list? How insertion, deletion is carried out on (a) 3. them? Explain with example through algorithm. 1+3+3
 - How polynomial is manipulated using linked lists? 8 (b)
- Define Header Linked Lists, Circular Linked Lists and Doubly 4. (a) linked lists. Also explain the applications of Linked Lists.

2+2+2+2

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[Turn over

(b) How searching is performed on linked list ? Write a C-Program for the same. 2+5

SECTION-C

- 5. (a) Why Trees are used ? How are they stored in memory ? Explain AVL Trees with example. 2+2+4
 - (b) How insertion and deletion is carried-out on Binary Trees ?
 Explain. 3.5+3.5
- 6. (a) Define Binary Trees. How searching is carried-out on them? Write C code implementation for searching an item or node. 2+2+4
 - (b) Write a note on Binary search trees.

SECTION-D

- 7. (a) What is the difference between Linear and Binary search? Explain through C-implementation. 4+4
 - (b) Compare Insertion sort and Selection sort with example.

3.5+3.5

7

- 8. (a) Draw comparison of any two searching techniques. 7
 - (b) Explain why quick sort is best? Explain its C-implementation. 2+6

(Compulsory Question)

9.	(a)	Any one complexity of Notation.	2
	(b)	Any two operations on doubly linked lists.	2
	(c)	Traversal of Binary tree.	2
	(d)	Write a procedure to perform shell-sort.	2
	(e)	Draw difference between Binary Search Tree and	Binary
		Tree.	2
	(f)	How linked lists are represented in memory?	2
	(g)	Write algorithm for radix-sort function.	2
	(h)	What is the complexity of Binary Tree Traversal?	1

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