Roll No..... Total No. of page(s): 1

OBCA/D20: 1229
BCA-232: Data Structurers-I

Time: 3 hrs] [Max. Marks: 80

Note: Attempt five questions in all selecting one from each Unit. Question No. 1 is compulsory.

COMPULSORY QUESTION

Q1	(a)	Explain Big-O notation with the help of example.	(4)
	(b)	Discuss the applications of Linked lists.	(4)
	(c)	Discuss polish notation.	(4)
	(d)	Discuss the properties of tree.	(4)

UNIT –I

Q2		What is the use of data structures? Discuss various data structure operations. Also explain how the complexity of an algorithm can be calculated.	(16)
Q3	(a)	Explain the following string operations: (i) Concatenation (ii) Insertion (iii)Deletion (iv)Replacement	(10)
	(b)	Find the table and corresponding graph for the second pattern matching algorithm where the pattern is P=ababab.	(6)

UNIT –II

Q4	(a)	Write down the algorithm for inserting an element at k^{th} position in an array.	(8)
	(b)	What is a Sparse matrix? How can you store a sparse matrix using linear array? Explain.	(8)
Q5	(a)	Write an algorithm to search an element from a given linked list.	(8)
	(b)	Explain Header linked list and Two-way linked list using suitable examples.	(8)

UNIT –III

Q6	(a)	What is a stack? Explain various operations that can take place on a stack.	(8)
	(b)	Define recursion. Write a recursive algorithm to find factorial of a number.	(8)
Q7		What do you mean by queue? How queue is stored in computer memory? Also explain in brief the concept of dequeue.	(16)

UNIT –IV

Q8	(a)	Discuss the concept of full binary tree and complete binary tree. Differentiate between the two using suitable examples.	(8)
	(b)	Explain various methods of representation of a binary tree along with their advantages and disadvantages.	(8)
Q9		What is a graph? Describe the sequential and linked representation of graphs.	(16)