Visharambag, Sangli – 416415

Second Year B.Tech. Computer Science and Engineering

ESE , ODD SEMESTER, AY 2022-23

Data Structures (6CS202)

ESE

PRN: _____

Day & Date: Friday, 03/02/2023 Time : 10.00 am to 01.00 pm

Max Marks: **50**

IMP: Verify that you have received question papers with correct course code, branch etc.

Instructions

a) All questions are compulsory.
b) Writing question number on answer book is compulsory otherwise answers may not be assessed.
c) Assume suitable data wherever necessary.
d) Figures to the right of question text indicate full marks.
e) Mobile phones, smart gadgets and programmable calculators are strictly prohibited.
f) Except PRN anything else writing on question paper is not allowed.
g) Exchange/Sharing of stationery, calculator etc. not allowed.

Text on the right of marks indicates course outcomes (Only for faculty use)		Marks	
Q1	A)	Describe Ackermann Function which uses recursion with example.	5	CO1
	B)	Write Applications of Linked List.	2	CO2
	C)	Evaluate and write the result for the following postfix expression with the help of stack. abc*-dc*f+g*+ where a=1, b=2, c=3, d=4, e=5, f=6, g=2.	4	CO2
	D)	Describe types of queues.	4	CO1
Q2	A)	Consider the following data present in tree, draw the tree and specify which one is Preorder, Inorder and Postorder Traversal sequences. S1: N, M, P, O, Q S2: N, P, Q, O, M S3: M, N, O, P, Q	4	CO2
	B)	Write an algorithm to reverse a linked list.	4	CO1
	C)	Distinguish between DFS and BFS.	4	CO3

	D)	Define: • Complete Graph • Siblings • Path in graph • The Height of a tree	4	CO1
Q3	A)	A binary tree is generated by inserting in order the following integers: 50,15,62,5,20,58,91,3,8,37,60,24. Draw the tree and write number of nodes in the left and right of the root.	4	CO1
	B)	Illustrate how to find Minimum Spanning Tree using Prims Algorithm and also write time complexity.	5	CO3
	C)	Describe the concept of Hashing and Hash functions.	4	CO1
	D)	Illustrate Quick sort algorithm with example and time complexity.	6	CO3

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