Reg. No.: .....

Name: .....

University of Kerala

U8707

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

COMPUTER APPLICATION

UK2DSCCAP103 - Introduction to Data structures

Academic Level: 100-199

Time: 1 Hour 30 Minutes(90 Mins.) **Max. Marks: 42**

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark Each.Answer all questions

Qn No.	Question	CL	CO
1	List any two significant features of circular linked list?	RE	2
2	Define data structure.	RE	1
3	Identify the stack operation that adds an element.	UN	3
4	Define sorting	UN	1
5	Identify any two major applications of data structures?	UN	2
6	Give the example search algorithm in graph.	UN	4

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Explain how row-major and column-major order affect memory representation in multidimensional arrays	UN	1
8	Differentiate between circular linked lists and singly linked lists using diagrams.	UN	2
9	Explain the difference between a complete binary tree and a full binary tree with examples.	AP	4
10	Illustrate the working principle of a queue.	AP	3

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	A) Illustrate using C program, insert operation in a doubly linked list? (any two cases) OR B) Demonstrate the application of stack.	AP	2, 3
12	A) Examine the operations on queue using arrays. OR B) Distinguish between polish and reverse polish notations using suitable examples.	AN	3, 3
13	A) Justify the statement that a data structure implemented for a sparse matrix optimizes space usage. OR B) Assess the evaluation of postfix expression using stack.	EV	4, 3
14	A) Design a C program to show working of bubble sort.	CR	1, 2

Qn No.	Question	CL	CO
	OR B) Develop C program to insert nodes at head and tail positions in a Singly Linked list.		