Reg. No. | | | | | | | | |

G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.

UG DEGREE END SEMESTER EXAMINATIONS - NOVEMBER 2024.

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc., INFORMATION TECHNOLOGY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
III	PART - III	CORE ELECTIVE	U21IT3E1A	DATA STRUCTURE

Date & Session: 12.11.2024 / AN **Time : 3 hours** **Maximum: 75 Marks**

Course Outcome	Bloom's K-level	Q. No.	**SECTION – A (10 X 1 = 10 Marks)** **Answer ALL Questions.**
CO1	K1	1.	What is the other name of the abstract data type. a) built- in b) user-defined c) function d) structure
CO1	K2	2.	---------- is a linear data structure. a) Array b) Tree c) graph d) Table
CO2	K1	3.	If a user tries to remove an element from empty stack it is called _____. a) Garbage Collection b) Empty collection c) Overflow d) Underflow
CO2	K2	4.	_____ method a queue follows. a) FILO b) LIFO c) FIFO d) SISO
CO3	K1	5.	Which is a specially designed node that has no parent. a) Root b) Child c) Parent d) Leaf
CO3	K2	6.	Relate which tree traversals is used to obtain a prefix expression a) Level-order traversal b) Pre-order traversal c) Post-order traversal d) In-order traversal
CO4	K1	7.	What is a graph called where all vertices have the same degree? a) Multi Graph b) Complete Graph c) Simple Graph d) Regular Graph
CO4	K2	8.	Estimate the appropriate method for solving the travelling salesman problem a) A spanning tree b) A minimum spanning tree c) Bellman – Ford algorithm d) DFS traversal
CO5	K1	9.	Mention the type of arrangement where data satisfies the "less than or equal to" relation between any two consecutive data. a) Internal sort b) External sort c) Ascending order d) Descending order
CO5	K2	10.	Relate the Name of process by which items are dispersed into a list based on a hash function. a) Radix b) Counting c) Hashed d) Selection
Course Outcome	**Bloom's K-level**	**Q. No.**	**SECTION – B (5 X 5 = 25 Marks)** **Answer ALL Questions choosing either (a) or (b)**
CO1	K3	11a.	Illustrate about abstract data type. **(OR)**
CO1	K3	11b.	Examine how multidimensional arrays are represented in memory.
CO2	K3	12a.	Illustrate how queue operations are performed using dynamic arrays. **(OR)**
CO2	K3	12b.	Solve the problem of converting an infix expression to a postfix expression using the stack algorithm.

CO3	K4	13a.	Clarify about array representation of a binary tree. **(OR)**
CO3	K4	13b.	Identify the steps involved in transforming a forest into a binary search tree.
CO4	K4	14a.	Investigate about Breadth First Search. **(OR)**
CO4	K4	14b.	Analyze the concept of a spanning tree with an example.
CO5	K5	15a.	Discuss about Quick Sort algorithm. **(OR)**
CO5	K5	15b.	Show how dynamic hashing can be implemented.

Course Outcome	**Bloom's K-level**	**Q. No.**	**SECTION – C (5 X 8 = 40 Marks)** **Answer ALL Questions choosing either (a) or (b)**
CO1	K3	16a.	Illustrate about Performance Analysis. **(OR)**
CO1	K3	16b.	Examine array as an abstract data type.
CO2	K4	17a.	Investigate about Adding and Erasing Polynomials. **(OR)**
CO2	K4	17b.	Clarify about the Sparse Matrix and its representation in detail.
CO3	K4	18a.	Analyze about traversal techniques of binary trees. **(OR)**
CO3	K4	18b.	Examine about Binary Search Tree.
CO4	K5	19a.	Assess the concepts of all Pairs Shortest Paths. **(OR)**
CO4	K5	19b.	Discuss in detail about Prim's algorithm.
CO5	K5	20a.	Discuss in detail about Merge Sort. **(OR)**
CO5	K5	20b.	Assess about Static Hashing.