

TED (15/19) 4133 (Revision – 2015/19)

A22-01394

Reg. No	
Signature	

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2022

DATA STRUCTURES

PART-A

- I. (Answer *all* questions in one or two sentences. Each question carries 2 marks)
 - 1. Write Postfix notation for the expression A+B*(C-D)/E*(F-G).
 - 2. List the operations that can be performed on a double ended queues.
 - 3. Describe a circular linked list.
 - 4. Describe the Expression trees.
 - 5. Write any two methods for representing a graphs.

 $(5 \times 2 = 10)$

PART-B

- II. (Answer *any five* of the following questions. Each question carries 6 marks)
 - 1. Explain commonly used asymptotic notations for calculating time complexity of an algorithm.
 - 2. Write an algorithm for evaluating a postfix expression.
 - 3. Write the procedure for insert and delete tail node of a singular linked list.
 - 4. Explain different tree traversal methods.
 - 5. Explain expression tree and threaded binary tree with example.
 - 6. Write an algorithm for binary search.
 - 7. Write Warshall's algorithm for All Pair Shortest Path problem.

 $(5 \times 6 = 30)$

PART-C

(Answer *one* full question from each Unit. Each full question carries 15 marks)

UNIT - I

III. (a) Write an algorithm for converting an Infix expression to Postfix.

(9)

(b) Write a program for implementing a stack ADT using array.

(6)

OR



http://gptcthirurangadi.in

IV.	(a) Write an algorithm for implementing a queue ADT using array.	(9)
	(b) Write note on circular queue and double ended queue.	(6)
	UNIT – II	
V.	Write a program for implementing Linked list ADT.	(15)
	OR	
VI.	Write a program for implementation of Stack using Linked list ADT.	(15)
	UNIT- III	
VII.	Write a program for tree traversal using BST.	(15)
	OR	
VIII	. (a) Describe binary tree? How strictly binary tree differ from complete binary tree?	(6)
	(b) Explain tree terminologies - Child, Degree, Depth, Edge, Height, Leaf, Level, Path	
	and Siblings.	(9)
	UNIT - IV	
IX.	Explain different graph traversal algorithms with example	(15)
	OR	
X.	(a) Explain Quick sort algorithm with example.	(11)
	(b) Explain Bubble sort algorithm.	(4)
