TED (15) – 4133

(REVISION — 2015)

Reg. No. .....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2018

DATA STRUCTURES

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Write concept of classes in C++.
2. Write the characteristics of Queue data structure.
3. Write short note on doubly linked list.
4. What is a complete binary tree ?
5. Define cycle in a graph. (5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Explain De queues with an example.
2. Describe the procedure for insert and delete first element of a linked list.
3. Write the procedure for stack_empty() in linked implementation of stack.
4. Write an algorithm for pre order traverse of a binary tree. Give an example.
5. Explain Threaded binary tree with example.
6. Define Graph. Write a short note on Path of length k in a graph.
7. Write an algorithm for bubble sort on a list of elements.

(5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) Explain about Queue ADT. 10

(b) Explain priority queues with a diagram. 5

OR

IV (a) Convert the expression to prefix and postfix form.

(i) (A+B)*C/(D-E) (ii) ((A-B) + (C*D)/E)/F 6

(b) Write an algorithm for postfix evaluation using stack. 9

UNIT — II

V (a) Explain the implementation of stack with linked list. 9

(b) Explain the procedure for deleting a specific element from a doubly linked list. 6

OR

VI (a) Explain the implementation of Queue with linked list. 9

(b) Write short note on circular and doubly linked list. 6

UNIT — III

VII Define binary trees and explain traversal algorithms with example. 15

OR

VIII (a) Explain inorder traversal using BST with an example. 7

(b) Explain Expression trees and draw expression tree for

(i) A+B*C+D (ii) A*B+C-D 8

UNIT — IV

IX Explain with example graph ADT and traversals. 15

OR

X (a) Write binary search algorithm. 7

(b) Write quick sort algorithm. 8
