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(Revision - 2015)

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Reg. No……
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2020

DATA STRUCTURES

[Maximum Marks: 75] [Time: 2.15 Hours]

PART-A

(Answer ***any three*** questions in one or two sentences. Each question carries 2 marks)

I. 1. List some common data structure operation.

2. Define Dequeue.

3. Define List in ADT.

4. List two types of Threaded binary tree.

5. Define Graph. (3 x 2 = 6)

PART-B

(Answer ***any four*** of the following questions. Each question carries ***6*** marks)

II 1. Evaluate the following Post-fix expression and give the result.

(a) A B + C * D / Where A=2, B=3, C=4 and D=5

(b) A B C + * D E / - Where A = 5, B = 6, C = 2, D = 12 and E = 4.

2. List any six application of stack.

3. Write algorithm for insertion operation on circular Queue.

4. Write algorithm for implementation of Stack using linked list.

5. Explain different cases of BST deletion.

6. Differentiate between DFS and BFS graph traversal algorithm.

7. Write and explain Bubble sort algorithm. (4 x 6 = 24)

PART-C

(Answer ***any of the three units*** from the following. Each full question carries 15 marks)

UNIT – I

III (a) Write the procedure for conversion of infix to post fix using stack. (10)

(b) Convert the infix expression to post fix expression.

(A + (B * C – (D / E – F) * G) * H) (5)

OR

IV (a) Write the procedure for evaluation of post fix expression using stack. (10)

(b) What is circular Queue? What is the limitation of Linear Queue? (5)

UNIT – II

V (a) Write algorithm to insert a node at starting in a singly linked list. (10)

(b) What are the application of linked list? (5)

OR

VI (a) Write algorithm for implementation of linear Queue using linked list. (10)

(b) What are the limitations of linked list? (5)

UNIT- III

VII (a) Explain different tree traversal algorithm. (10)

(b) What is Expression tree, explain with example? (5)

OR

VIII (a) Define BST, write algorithm for insertion operation. (10)

(b) Write the algorithm for Pre – order traversal of BST. (5)

UNIT - IV

IX (a) Explain any two graph representation in memory. (8)

(b) Write and explain Quick sort algorithm. (7)

OR

X (a) Write and explain recursive Binary search algorithm. (10)

(b) What are applications of graph? (5)
