

Total No. of Questions : 5]

SEAT No. :

P-6004

[Total No. of Pages : 3

[6144]-302

S.Y.B.B.A. (C.A.)

CA - 302 : DATA STRUCTURE

(2019 Pattern) (Semester-III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) All questions are compulsory.
- 2) Draw diagram wherever necessary.
- 3) Figures to the right indicate full marks.

Q1) Attempt any Eight of the following.

[8 × 2 = 16]

- a) What is data structure?
- b) What is sorting? State the techniques of sorting.
- c) What is non-primitive data structure?
- d) What is searching?
- e) Mention the features of ADT.
- f) What are the types of linked list?
- g) List down the applications of list.
- h) What is polynomial? How is it represented?
- i) Differentiate array & structure.
- j) What are the applications of stack?

P.T.O.

Q2) Attempt any Four of the following.

[4 × 4 = 16]

- a) Explain different types of Dynamic Memory Allocation functions.
- b) Explain Linear Data structure with examples.
- c) What is stack? Explain different operations used in stack.
- d) What is algorithm? Explain its characteristics.
- e) Explain selection sort technique with example.

Q3) Attempt any Four of the following.

[4 × 4 = 16]

- a) Write a function to create & display singly linked list.
- b) Write a function to insert an element into a queue, in which the queue is implemented as array.
- c) Explain BFS traversing technique with an example.
- d) Write a function to preorder traversal of the tree.
- e) Write an algorithm to convert infix expression to postfix expression.

Q4) Attempt any Four of the following:

[4 × 4 = 16]

- a) Construct an AVL tree of following data.
20, 10, 30, 5, 15, 25, 35, 13, 17
- b) Construct Binary search tree for following data.
78, 95, 2, 57, 13, 29, 61, 10
- c) Sort the following data by using selection sort
12, 11, 13, 5, 6
- d) Write a C- program to display a linked list in Reverse order.
- e) What is Graph? Explain its representation techniques in detail.

Q5) Attempt any two of the following :

[2 × 3= 6]

- a) Convert the following expression into prefix
 - i) $A+B/C*(D - A) ^ F ^ H$
 - ii) $A* (B*C+D*E) + F$
- b) Define the following terms
 - i) Parent Node
 - ii) Sub tree
 - iii) Directed Graph
- c) What is degree of vertex? Find indegree & outdegree of the following graph for each vertex.

