

Total No. of Questions : 5]

SEAT No. :

PC-1155

[Total No. of Pages : 2

[6317]-102

S.Y. B.B.A.

COMPUTER APPLICATION
CA - 302 : Data Structure (CBCS)
(2019 Pattern) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right side indicate full marks.*

Q1) Attempt any Eight of the following (out of Ten):

[8 × 2 = 16]

- a) What is an abstract data type?
- b) What are the different types of tree?
- c) What are the different operations performed on stack?
- d) List out different types of Linked List.
- e) What are different types of sorting?
- f) What is pointer to pointer.
- g) What is self referential structure?
- h) Define Data structure.
- i) Explain typedef keyword with syntax or example.
- j) What is a complete binary tree.

Q2) Attempt any four of the following (out of Five):

[4 × 4 = 16]

- a) What is height-balanced tree? Explain LL and LR rotations with an example.
- b) Explain insertion sort technique with an example.
- c) What is queue? Explain different operations performed on queue.
- d) What is Graph? Explain adjacency list of graph.
- e) Write an algorithm to convert given infix expression to postfix expression.

P.T.O.

Q3) Attempt any Four of the following (out of Five): [4 × 4 = 16]

- a) Write a function to create and display circular singly linked list.
- b) Explain different types of AVL rotations with an example.
- c) Write a function to traverse a graph using DFS technique.
- d) Write a function to insert a node in linked list at given position
- e) Write a function to check whether a given string is palindrome or not (use Stack)

Q4) Attempt any Four of the following (out of Five): [4 × 4 = 16]

- a) Sort the following data by using selection sort. 35, 20, 40, 100, 3, 10, 15.
- b) Construct Binary search tree of following data. 15, 30, 20, 5, 10, 2,7.
- c) Write a function to search the element from the array using binary search.
- d) What is a circular queue? Explain it with an example.
- e) Write a 'C' Program to count the number of nodes from singly link list.

Q5) Write any two of the following : [2 × 3 = 6]

- a) Evaluate the following postfix expressions where A=2, B=10, C=4, D=1
 - i) AB-CD*/ ii) ABC*+
- b) Define the following terms. i) bridge ii) Cyclic graph iii) Pendant vertex
- c) What is the degree of vertex? Find in degree & out degree of following graph for each vertex.

