

Total No. of Questions : 5]

SEAT No. :

PD-2056

[Total No. of Pages : 2

[6441]-502

S.Y. B.B.A.

COMPUTER APPLICATION

CA -302: Data Structure

(2019 Pattern) (Semester - III)

Time : 2½Hours]

[Max. Marks :70

Instructions to the candidates:

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

Q1) Attempt any EIGHT of the following. (Out of Ten)

[8×2=16]

- a) What is spanning tree?
- b) What is DFS?
- c) What is a pointer to pointer?
- d) List out different types of tree.
- e) What is the need for the header?
- f) What is stack underflow?
- g) Define node structure of doubly linked list.
- h) Why are stacks called Last in First Out (LIFO),
- i) What is Primitive data structure?
- j) List the different searching techniques

Q2) Attempt any four of the following. (Out of Five)

[4×4=16]

- a) What Operations we can perform on BT and BST.
- b) Explain the linear search method with its advantages and disadvantages.
- c) Explain different types of Dynamic Memory Allocation functions.
- d) What is Graph? Explain adjacency list of graph.
- e) Write an algorithm for evaluation of Postfix Expression.

P.T.O.

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

- a) Write a function to add node at the given position in singly linked list
- b) Explain different types of AVL rotations with an example.
- c) Write a program to reverse a string using stack.
- d) Write a function to delete a node at the end of doubly linked list
- e) Write a function to create a tree.

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

- a) Construct an AVL tree for given data : WED, TUE, MON, SAT, THUR, FRI.
- b) What is circular queue ? Explain operations performed on static circular queue.
- c) Write a C- program to display a linked list in Reverse order
- d) An array contains the elements shown below. Using binary search algorithm, trace the steps followed to find key=56, 18 13 17 26 44 56 88 97
- e) Sort the following numbers using merge sort. 38 27 43 3 9 82 10

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

- a) Convert the following expression into postfix
 - i) $A/B \ \$ \ D \ *E - A * C$
 - ii) $(A + B * C - D) / E \ \$ \ F$
- b) Define the following terms
 - i) Strict binary tree
 - ii) Path
 - iii) Pendant vertex
- c) What is degree of vertex? Find in degree & out degree of following graph for each vertex.

