

Saraswat Vidyalaya's  
**Sridora Caculo College of Commerce & Management Studies**  
First Year B.C.A. Semester-II Supplementary Examination, October 2020

**DATA STRUCTURES**

Duration: 2 Hours

Total Marks: 30

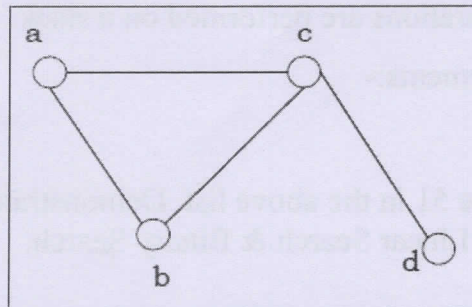
**Instructions:** 1) *All questions are compulsory*  
2) *Figures to the right indicate full marks*  
3) *Use of Calculator is prohibited*

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**Q.I) Answer the following questions: - (Any 5)**

**(5X2=10)**

- a) State any 2 applications of queue.
- b) Give examples of Linear & Non-Linear Data Structures ( 2 of each).
- c) What are the benefits of Doubly Linked List over Singly Linked List?
- d) Convert following infix expression to postfix expression:-  $X / Y - Z / A$
- e) List out the degree of all vertices of following graph:-



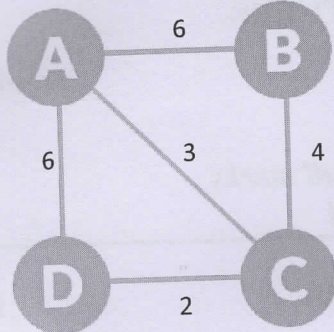
- f) Write short note on Circular Queue.
- g) States the benefits of Hashing.
- h) Void main()

```
{  
    int i=1,j=0,x=0,y=1;  
    int c[2][3] = {{1, 3, 0}, {-1, 5, 9}};  
    printf("%d\t",c[i][j]);  
    printf("%d",c[x][y]);  
}
```

**Q.II) Answer the following questions: - (Any 4)**

**(4X5=20)**

- a) Draw minimum spanning tree for following using kruskal's algorithm.



- b) Explain the working of Bubble Sort with the help of an example.

- c) Construct a Binary Search Tree for following data:

20,10,5,1,7,15,30,25,35,32,40

- d) Write down the steps to add a node at the end of the Singly Linked List.

- e) Explain how push & pop operations are performed on a stack.

- f) Consider following set of elements:-

5,14,22,35,40,51,70,85,92

Suppose we want to search value 51 in the above list. Demonstrate how many comparisons are required under Linear Search & Binary Search.