Total No. of Questions : 5]

SEAT No. : ____

PA-1017

[Total No. of Pages :2

[5902]-41
S.Y. B.Sc. (Computer Science)
CS-241 : DATA STRUCTURES & ALGORITHMS - I
(CBCS) (2019 Pattern) (Semester - IV)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates :

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***

Q1) Attempt any Eight of the following: **[8 × 1 = 8]**

a) Define degree of a tree.

b) Define the term left skewed binary tree.

c) What is height balance tree?

d) List 2 applications of graph.

e) What is topological sorting?

f) Define Bucket.

g) What is collision?

h) Define complete Binary tree.

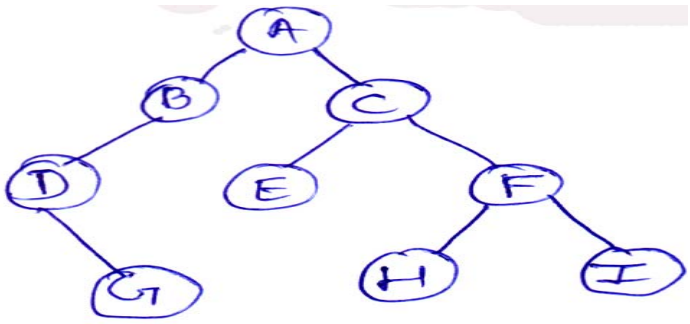
i) What is weighted graph?

j) Explain open addressing concept in hash table.

Q2) Attempt any four of the following: **[4 × 2 = 8]**

a) Traverse the following binary tree using given traversal technique

i) Inorder ii) Postorder.



P.T.O.

b) Compare B tree & B+ tree.

c) Define indegree & outdegree of vertex with example.

d) Explain the concept of hushing & rehashing in Hash table.

e) Explain concept of Red - Black Tree.

Q3) Attempt any two: **[2 × 4 = 8]**

a) Write C program to represent graph as adjacency matrix.

b) Write C Program to compare two BST.

c) Write a program to find minimum value node from the BST.

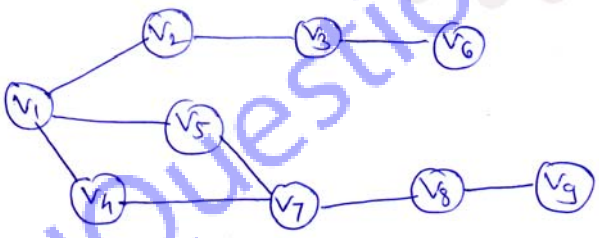
Q4) Attempt any two: **[2 × 4 = 8]**

a) Write a program to insert an element into binary tree.

b) Construct AVL tree for the following:

{Mon, Sun, Thur, Fri, Sat, Wed, Tue}

c) Consider the following graph.



Give i) DFS Traversal

ii) BFS Traversal.

Q5) Attempt any one of the following: **[1 × 3 = 3]**

a) Write note on quadratic probing

b) Compare the data structures.

Tree & Graph.

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