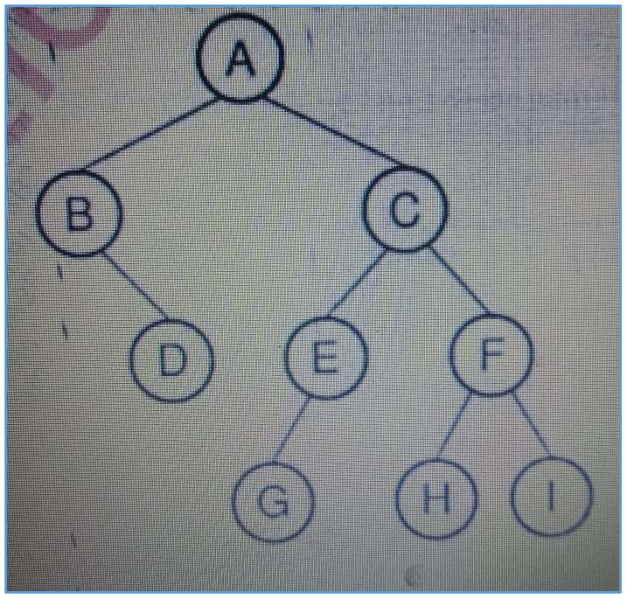
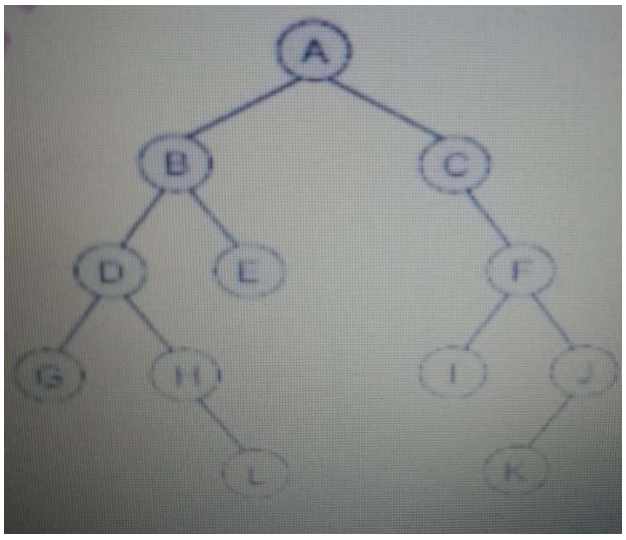
Question Bank for UT2 , SE IT, Semester III 09/10/19

2019-20

1. Write an algorithm for Merge sort and comment on its complexity.
2. Explain Quick sort using an example. Write algorithm for it and comment on its complexity.
3. Explain DFS and BFS algorithm with example.
4. Traverse the binary tree into preorder, inorder, postorder by giving its algorithm.





5. What is Collison? What are the methods to resolve collision? Explain linear probing with example.
6. What is Binary Search Tree? Construct BST for following elements.
    a. 13, 3, 4, 12, 14, 10, 5, 1, 8, 2, 7, 9, 11, 6, 18
    b. 47, 12,75, 88, 90, 73, 57, 1, 85, 50, 62

7. Explain Heap Sort using an example. Write algorithm for it and comment on its complexity.

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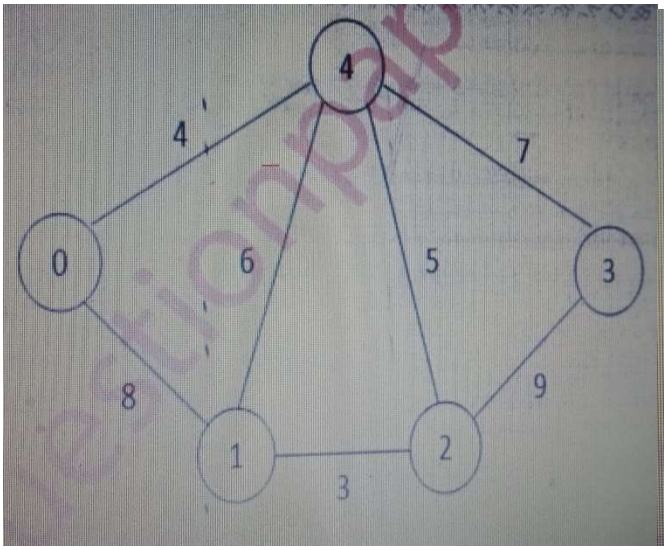
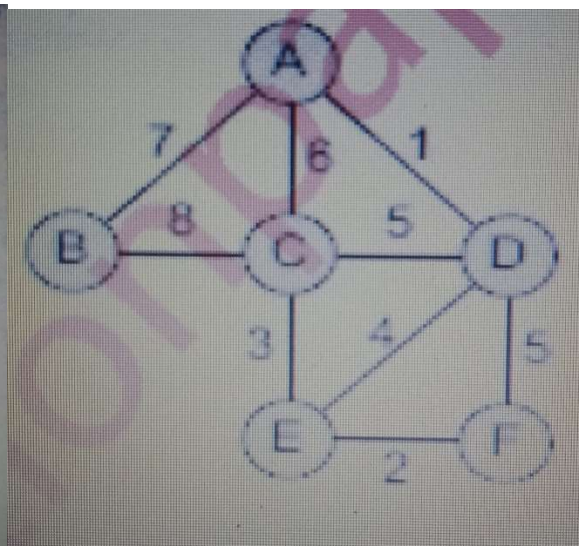
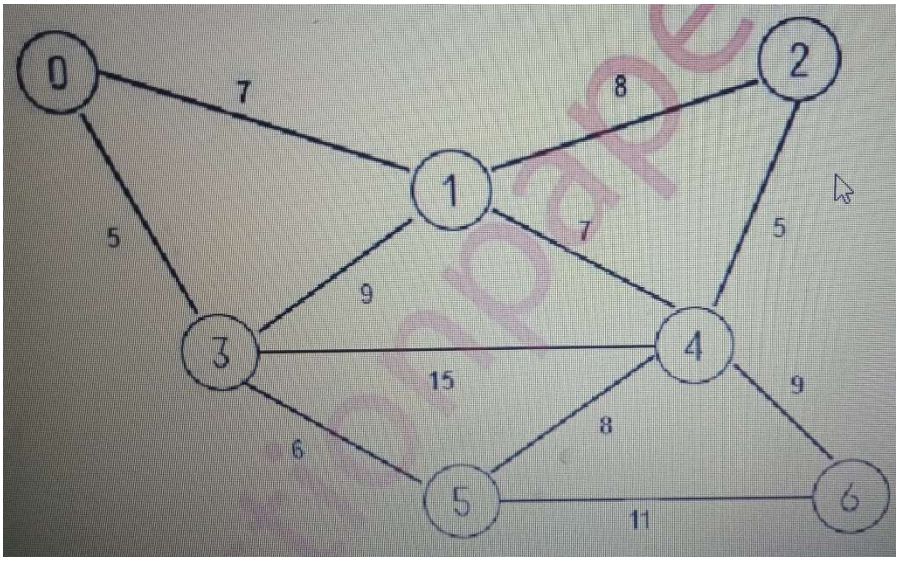
8. What is MST? Draw the MST using Kruskal's and Prim's algorithm and find out the cost with all intermediate steps.







9. Define BST. Write an algorithm for following operations on BST.
    1. Insertion
    2. Deletion

10. Determine and analyze time complexity of following code fragments.

a)
```
A()
{ int i, j,count;
    Count=0;
    for (i = 0; i < n; i++) // loop 1
        { for (j = 0; j < n; j++) // loop 2
            { count++;
              printf("%d", count);
            }
}       }
```

b)
```
void fun(int n, int arr[])
{
int i=0,j=0;
for(;i<n;++i)
          while(j<n && arr[i] < arr[j])
          j++;
}
```

c)
```
A()
{
int i,j,k,n;
for(i=1;;i<n;i++)
{  for(j=1;j<=i;j++)
   {   for(k=1;k<=100;k++)
       {   pritnf("Hi");
       }
  }
}
}
```

d)
```
A()
{
   for(i=1;i<n;i=i*2)
        printf("Hi");
}
```