Spring 2020 Final Exam

Course Code : CSE 2208 Course Title : Algorithms Lab

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Ans. to the Q. No. 2

```
int knapsack (int W, int w[], int v[], int n)
{
    int i, wt;
    int K[n+1][W+1];
    for (i=0; i<=n; i++)
    {
        for (wt=0; wt<=W; wt++)
        {
            if (i==0 || wt==0)
                K[i][wt] = 0;
```

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```
else if (w[i-1] <= wt)
{
    if (v[i-1] + K[i-1][wt - w[i-1]] > K[i-1][wt])
        K[i][w] = v[i-1] + K[i-1][wt - w[i-1]];
    else
        K[i][wt] = K[i-1][wt];
}
else
    K[i][wt] = K[i-1][wt];
}
}
int i=n, k=w;
if (v[i,k] != v[i-1, k])
    cout << ith item;
```

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```
        i = i-1 ;
        k = k-wi;
    else.
        i = i-1;

    return K [n] [w];
}
```

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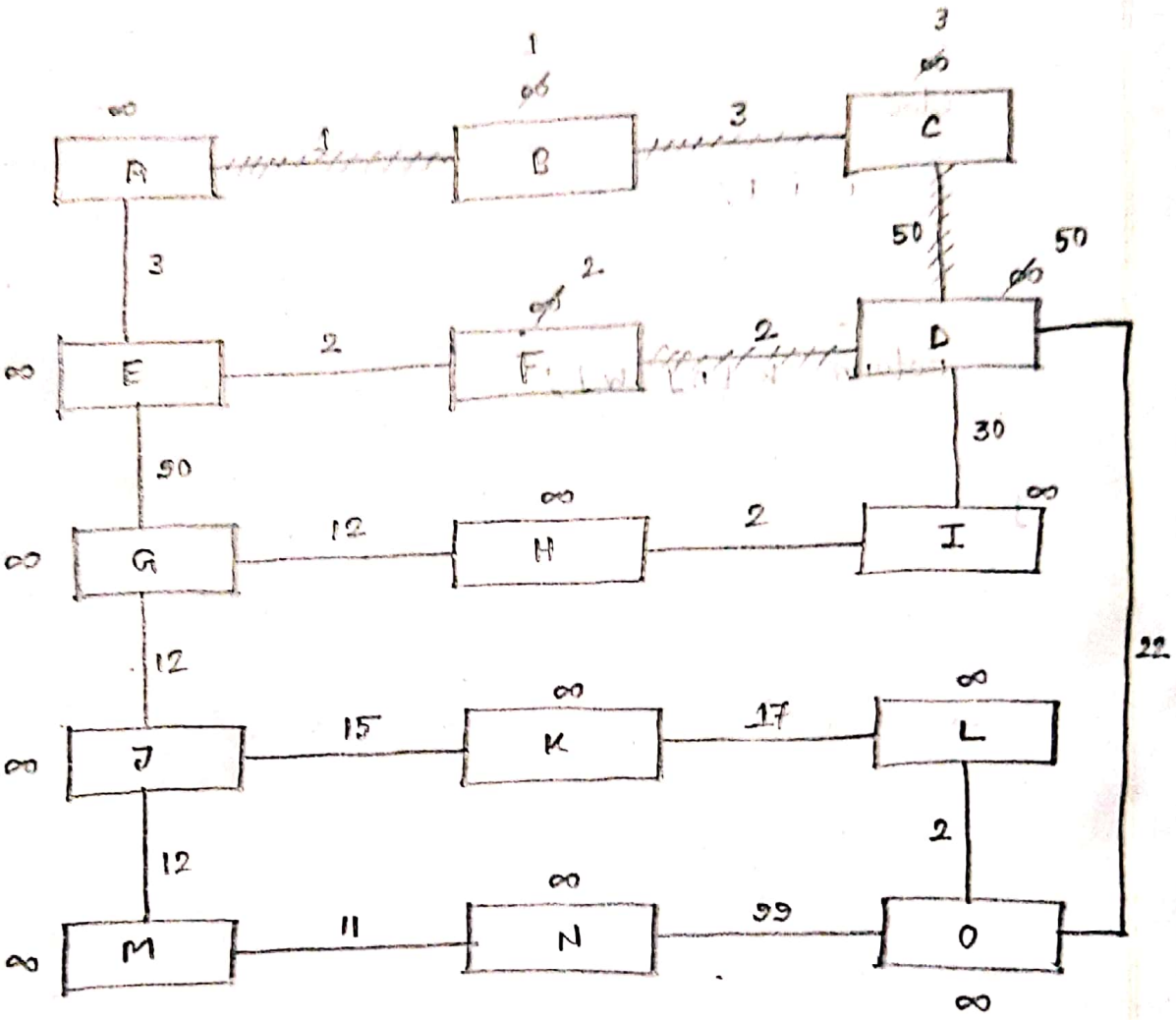
Ans. to the Q. No. 3



Applying Prim's Algorithm,

$T = \{ (A,B), (B,C), (C,D), (D,F) \}$

Cost of Minimum Spanning Tree : $1 + 3 + 50 + 2$

$= 56.$

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Ans. to the Q.No.1

In this case we go for greedy approach.

Initially, tank is full. now calculate how many next coming gas station it can pass.

Assume gas stations locations are 50, 150, 250, 300, 350, 500 miles.

Now, here initially full tank can pass 1st 4 stations (50, 150, 250, 300) but it can't reach 350. So, we have to fill it at station 350. Now again how many stations it can pass from here, so it can't reach 650. So again we need to full tank at 600.

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And like this keep going until we reach goal. time complexity is $O(n)$.

where n is the number of gas stations.

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