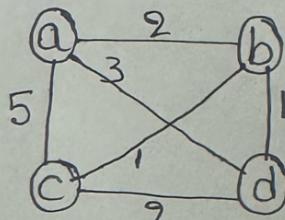


Date:- 24/06/24,

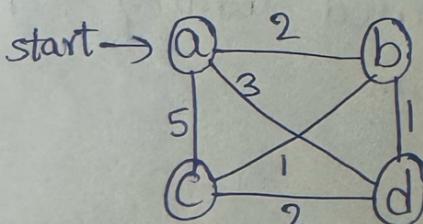
CSA0672 - DAA

Answer  
B.Lavanya  
192311131

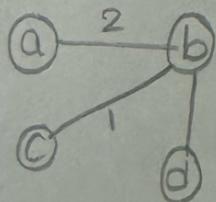
- ① Apply Prim's algorithm to solve the minimum spanning tree for the given graph. Also compute the total cost of all edges.



Sol:- Prim's Algorithm



Source = A



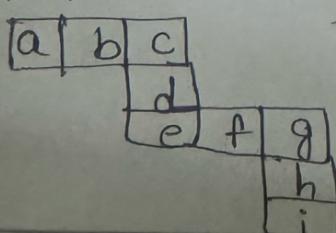
	a	key	P <sub>T</sub>
a	T	0	-
b	T	2	a
c	T	5	ab
d	T	3	ab

$\therefore$  The total cost of all edges in the MST = 4

- ② To Compute the sum of subsets for the following graph and then satisfy the given constraints.

Set  $S\{j\} = \{a, b, c, d, e, f, g, h, i\}$  Values used are

$V\{i\} = \{1, 2, 3, \dots, 9\}$



Used all values Only one time

Constraints hold such as

$$a+b+c = c+d+e = e+f+g = g+h+i$$

Sol:-

a	b	c
	d	
e	f	g
	h	i

$$\text{Given that } a+b+c = c+d+e = e+f+g = g+h+i$$

By using the values  $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$  and adding equal to other three values of sum

1)  $\begin{array}{|c|c|c|} \hline 3 & 9 & 1 \\ \hline 8 & & \\ \hline \end{array} = 13$

$$\begin{array}{|c|c|c|} \hline 4 & 7 & 2 \\ \hline 5 & & \\ \hline \end{array} = 13$$
  
$$\begin{array}{|c|c|c|} \hline & & \\ \hline 6 & & \\ \hline \end{array} = 13$$

$$a+b+c = c+d+e = e+f+g = g+h+i$$

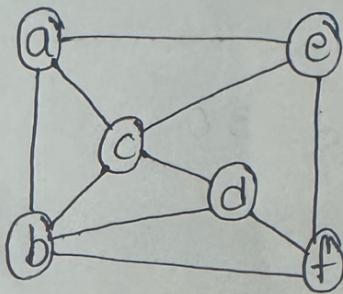
$$13 = 13 = 13 = 13$$

2)  $\begin{array}{|c|c|c|} \hline 6 & 7 & 1 \\ \hline 5 & & \\ \hline \end{array} = 14$

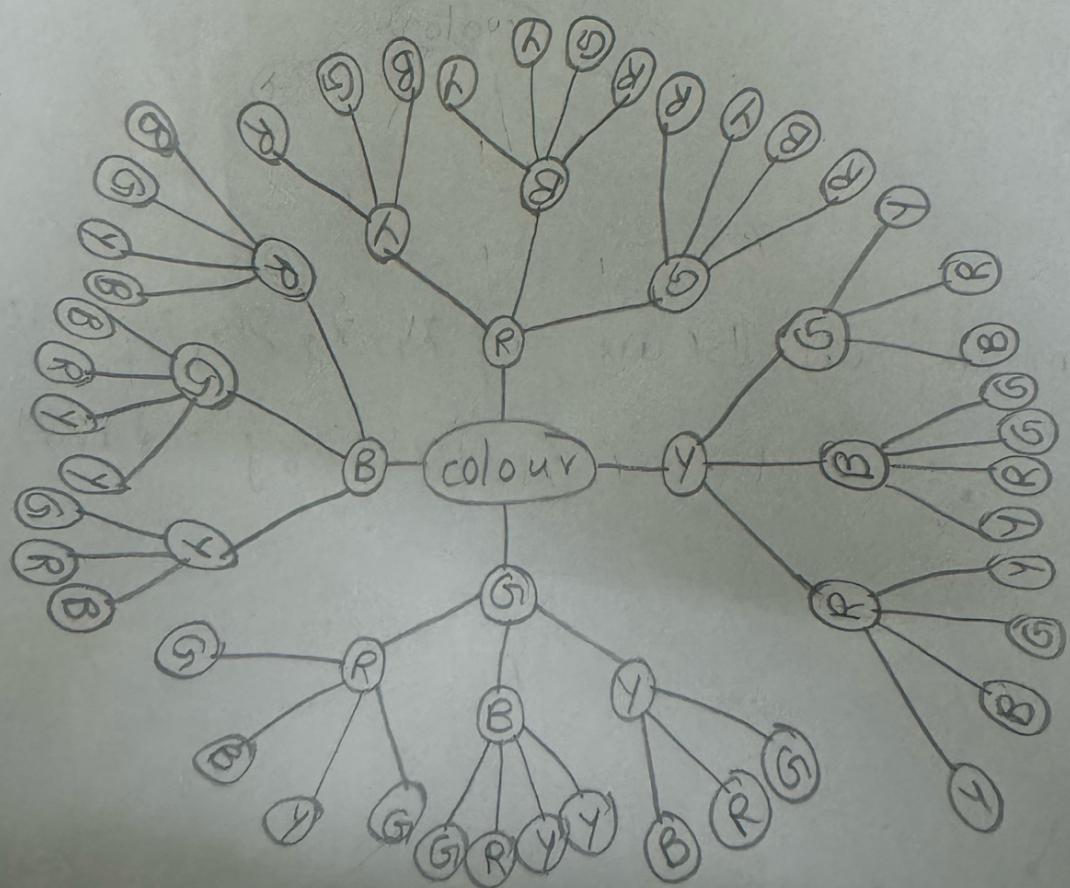
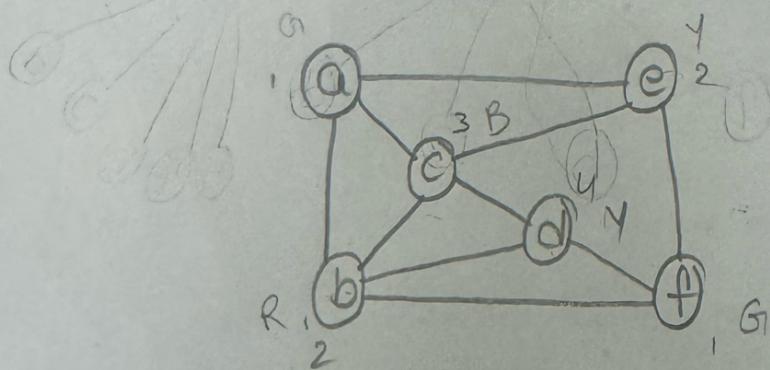
$$\begin{array}{|c|c|c|} \hline 8 & u & 2 \\ \hline 3 & & \\ \hline 9 & & \\ \hline \end{array} = 14$$

$$u = u = u = u = 14$$

③ Calculate the chromatic no for the following Graph coloring.



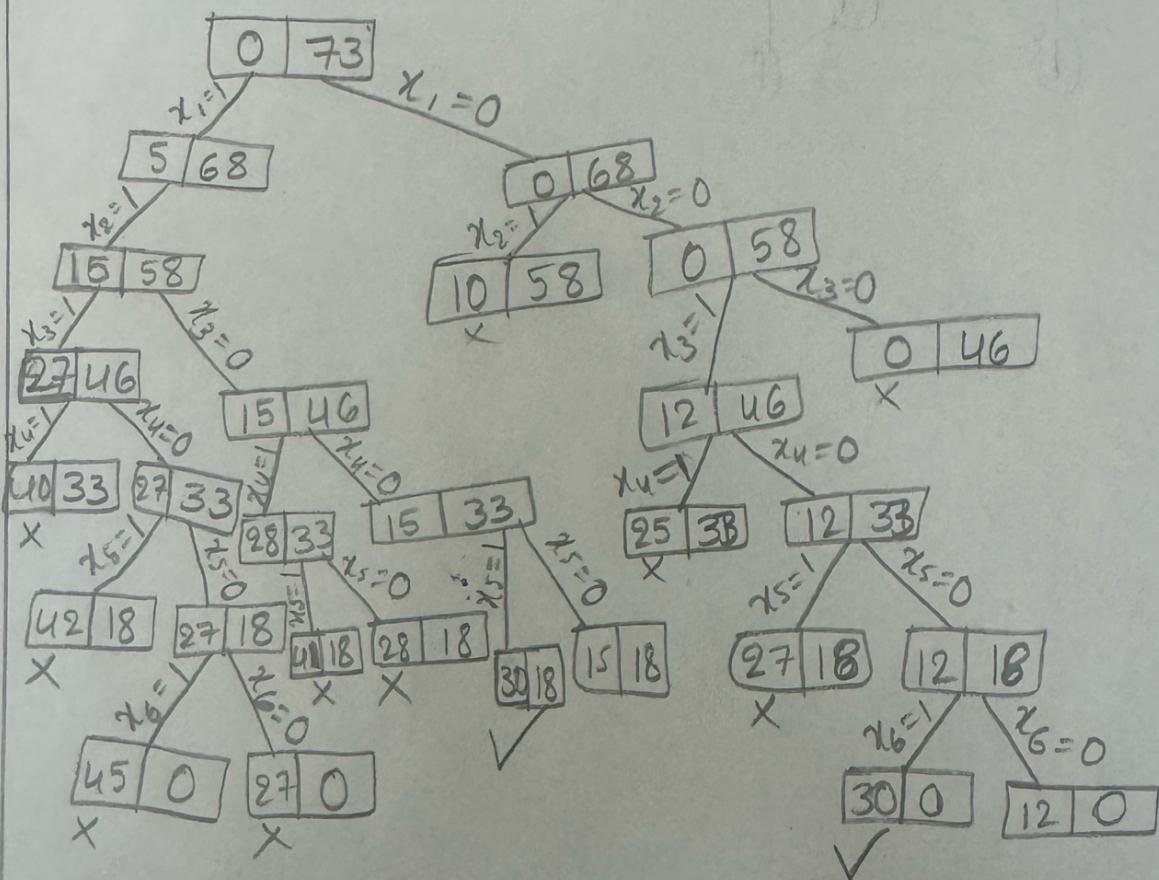
Sol:-



④ Consider a set  $S = \{5, 10, 12, 13, 15, 18\}$  and  $d = 30$ , solve it for obtaining a sum of subset.

Sol: Given

$$S = \{5, 10, 12, 13, 15, 18\}; d = 30$$



$\therefore$  Sum of subsets are =  $\{x_1, x_2, x_5\} = \{5, 10, 15\}$   
 $\{x_3, x_6\} = \{12, 18\} //$