CSA0669 - Design and Analysis of Algorithm

Assignment

By

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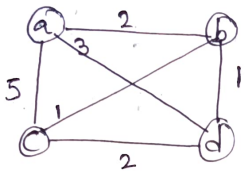
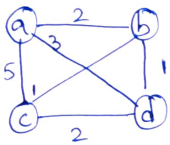
B Tech IT.

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

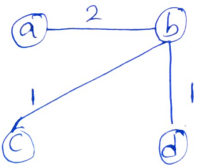


Prims algorithm



Source = A

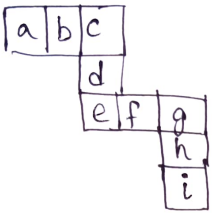
	Q	Key	Path
a	T	0	-
b	T	2	a
c	T	~~3~~ 1	~~a~~ b
d	T	~~3~~	~~a~~ b



∴ The total cost of all edges in MST = 4

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

Sets S = {a, b, c, d, e, f, g, h, i} values used are V[i] = {1, 2, 3 ... 9}



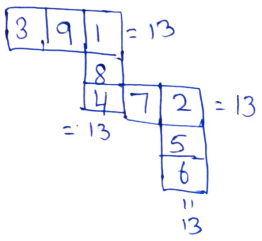
used all values only one time

constraints hold such as

$a+b+c = c+d+e = ef+g = g+h+i$.

Given that $a+b+c = c+d+e = ef+g = g+h+i$ By using the values V[i] and adding equation to other three values of sum

1)

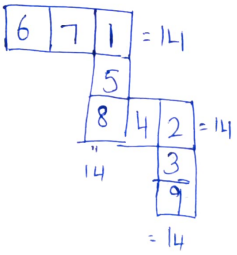


$a+b+c = c+d+e = ef+g = g+h+i$

$3+9+1 = 1+8+4 = 4+7+2 = 2+5+6$

$13 = 13 = 13 = 13$

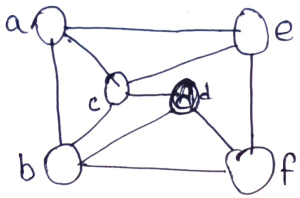
2)

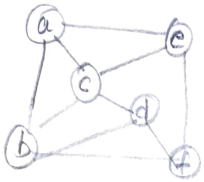


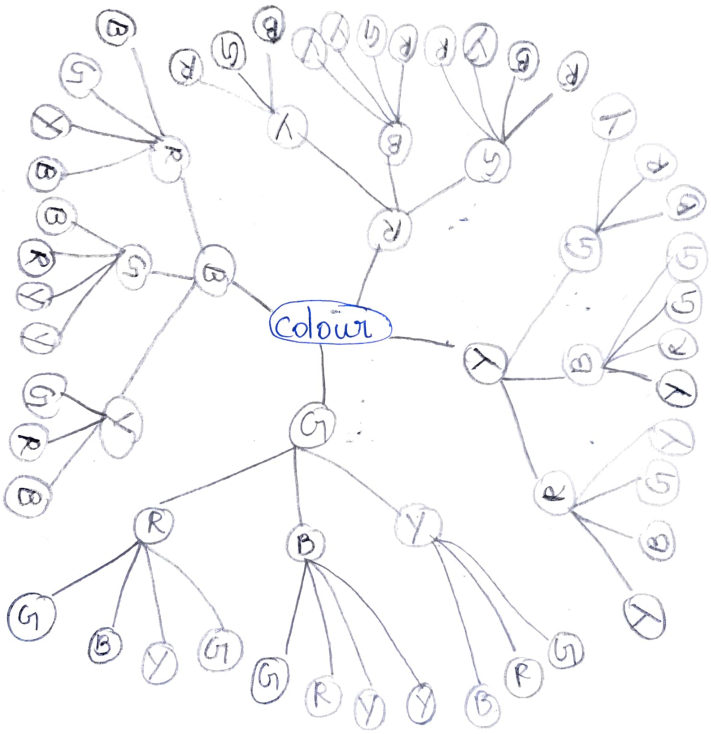
$6+7+1 = 1+5+8 = 8+4+2 = 2+3+9$

$14 = 14 = 14 = 14$

3. Calculate the chromatic no for the following Graph coloring.







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

$S = \{5, 10, 12, 13, 15, 18\}$ Sum(d) = 30

Total = 73

∴ Sum of Subsets are $\{x_1, x_2, x_5\} = \{5, 10, 15\}$

$\{x_1, x_3, x_4\} = \{5, 12, 13\}$

$\{x_3, x_6\} = \{12, 18\}$