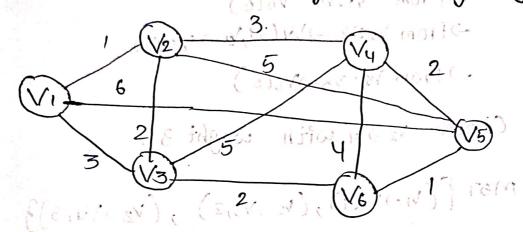
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Design and Analysis of Algorithms:

ALM-2:

a) Construct Minimal spanning Treefor a given groph.



(501) According to Prim's algorithm!

*Vioited set {vi} (shows) * Vaci) , Vi-) Vaci), Vi-) Vaci),

*Choose V17V2 with weight 1 V1-7V6(6)
MST { (V1-7V2,1) }

step-2: Add V2 to M51

*Visited Set (Vi, V2)

*Edges to consider

From $V_1:V_1 \rightarrow V_5(3)$, $V_1 \rightarrow V_6(6)$ From $V_2:V_2 \rightarrow V_3(2)$, $V_2 \rightarrow V_4(3)$, $V_2 \rightarrow V_5(5)$ Choose $V_2 \rightarrow V_3$ with weight 2.

MOT: { (V, -> 1/2) , (V2 -> V3,2))

Step-3;- Add V3 to MST

* Visited set {v,,v2,v3}

* Edges to consider

>From V1:V1 > V6(6)

-> From V2:1/2 -> W(3),1/2-> V5(5)

-) from Vs: Vs-)V6(5)

Choose v2-) ky with weight 3

MOT { (V1-) V2(1), (V2-) V3,2), (V2-) V4,3)}

Step-47 Add Vy to MST.

>From V1:V, > V6 C6)

>From V2: V2 -> V5(5)

-) From V3: V3 -> V6 (5)

-) From V4: V4-> V5 (2)

Vy > V6(4)

choose vy 2 v5 with weight 2.

MST & (V1-)V2(1)), (V2-)V3,2), (V2-)V4,3) (W-)V5,2) * Visited set : q VI, 1/2, 1/3, WI, N3 y

* Edges to Consider

From W: V1 -> V6(6)

From V3: V3 - 7 V6(5)

From Wily-DV6(4)

Choose vy -> vo with weight y

MGT ! {(V1-)V2,1), (V2-)V3,2), (V2-)V4,3) (V4-)V5,2), (V4-)V6,4)

step-6: All vertices are included

*Visited set {V1, N2, N3, Nu, V5, V6} *Stop.

Final MOT!

Edges:

-) V1-) V2(1)

-7827 V3 [2)

-) Vz -> Vy (3)

-) V4-) V5(2)

-> 14-> V6 CM)

Total weight: 1+2+3+2+4 = 12.

This is the Minimal Spanning Tree using Prim's algorithm for the given graph.

(V3) (N) 3 (

Check Allow averty weight 1

(E, NE 50) (E, OY - OY) (1, OY - OY) (100)

stip in Allvertices are included

4 Visited set [Vijle 1/5 My, vs, vs) +

Jack Med !

dies.

- 1 Vi - 12(1)

(27 24 6 27 (-

(E) MICE.

(3) W. H. M.

CWAREMY.

SI - Marie C. I ; Tapas Wo

milities to minimal the second parameter bearing and