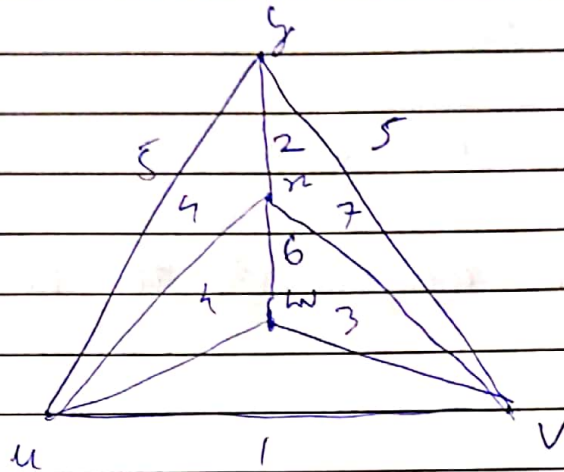


Q) Prim's Algorithm:-

We take Edge Heap set and select minimum from it unless the minimum spanning set is created.



We start with vertex v and add edges to heap.

$$E = \{vu, vy, vx, vw\}$$

We select minimum edge vw ; $C(vw) = 1$

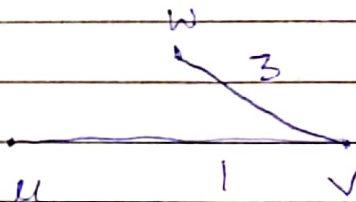


Adding edges to heap:-

$$\text{Heap} = \{vy, vx, vw, uy, ux, uw\}$$

Selecting minimum :-

$$e_{\min} = 3$$

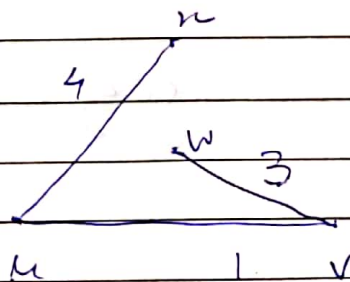


Adding edges adjacent to w to the Edge heap :-

$$\text{Edge Heap} = \{u_y, v_n, u_y, u_n, u_w, w_n\}$$

Selecting min weight Edge

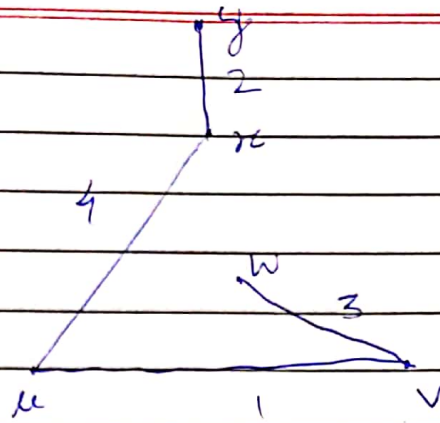
$$e_{\min} = 4$$



Adding edges adjacent to n in the heap

$$\text{Edge Heap} = \{u_y, v_n, u_y, u_w, w_n, n_y\}$$

Selecting minimum edge $e_{\min} = 2$



We have added $|V| - 1$ edges, hence our minimum spanning tree is complete and we stop the execution of our algorithm.

$$\sum_{e \in E} e = 1 + 3 + 4 + 2 = 10$$