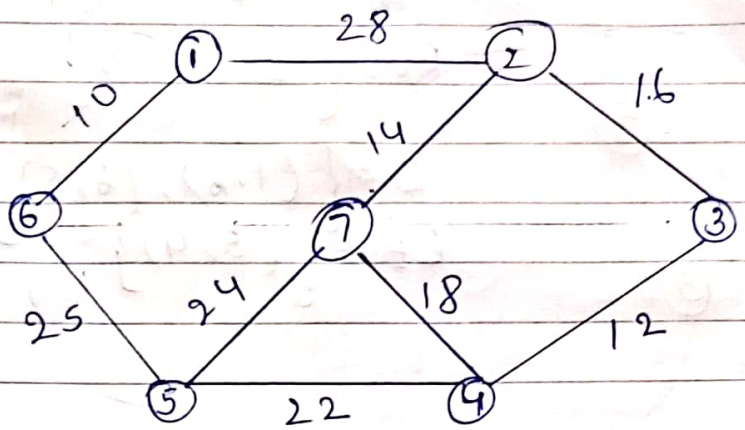
Prim's Algorithm Assignment



Step 1:- Subset = Sub
Remaining Vertices = RV
~~Starting set = S~~ Connected Vertices = S
lightest edge = LE

step 1:-

①

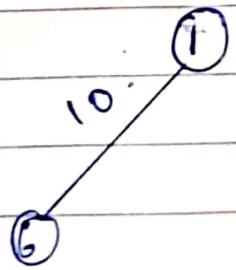
Sub = {a}.

RV = {2, 3, 4, 5, 6, 7}.

S = { }.

LE = {(1, 6)}

step 2:-

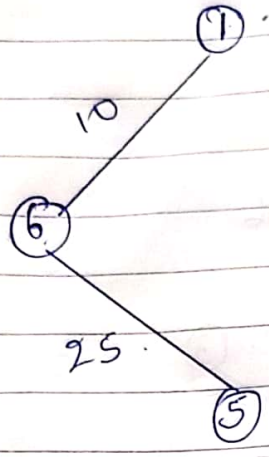


Sub = {1, 6}

RV = {2, 3, 4, 5, 7}.

S = {(1, 6)}, LE = {(6, 5)}

Step 3 :-



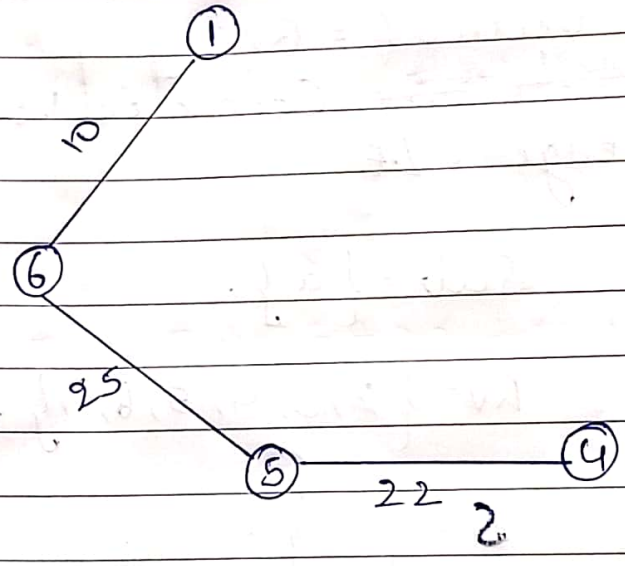
Sub = {1, 6, 5}

RV = {2, 3, 4, 7}

S = {(1,6), (6,5)}

LE = {(5,4)}

Step 4 :-



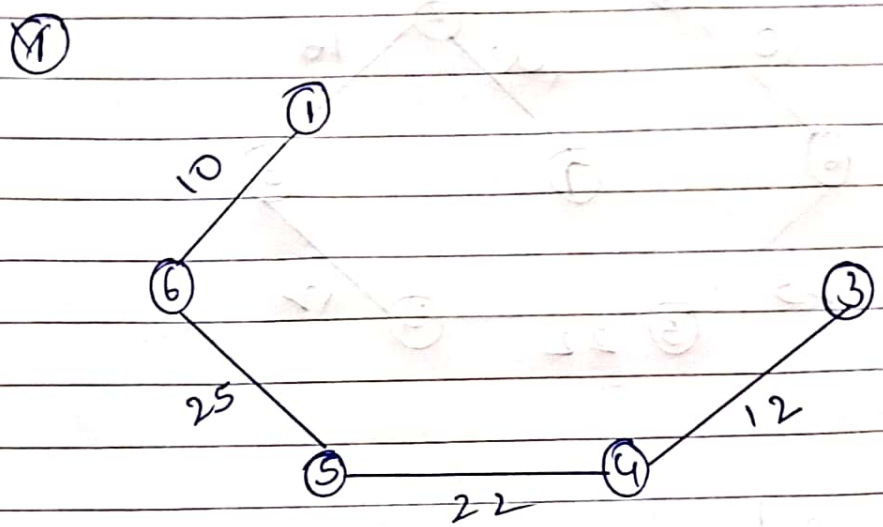
Sub = {1, 6, 5, 4}.

RV = {2, 3, 7}.

S = {(1,6), (6,5), (5,4)}

LE = {(4,3)}.

Step 5 :-



Sub = {1, 6, 5, 4, 3}.

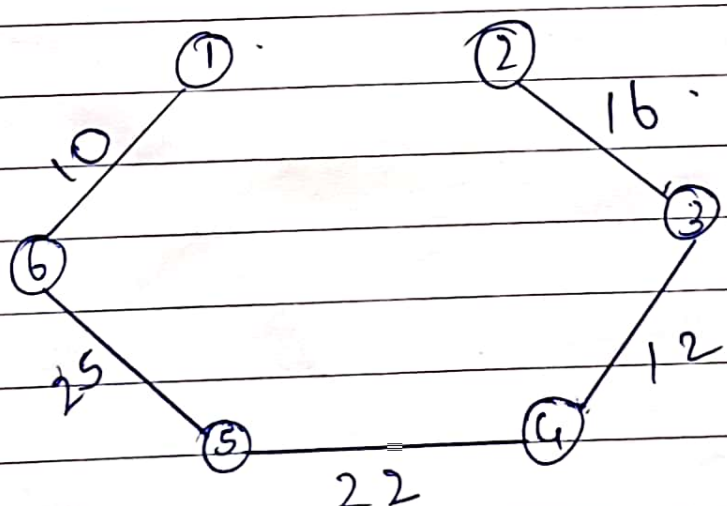
RV = {2, 7}.

S = {(1,6), (6,5), (5,4), (4,3)}.

LE = {(3,2)}.

Step 6 :-

Sub = {1, 6, 5, 4, 3, 2}.

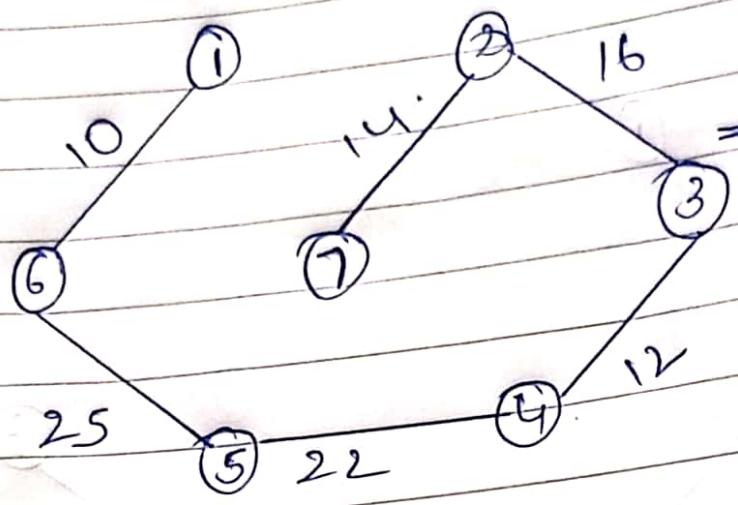


RV = {7}.

S = {(1,6), (6,5), (5,4), (4,3), (3,2)}

LE = {(2,7)}.

Step 7:-



$\Rightarrow$ MST.

$Sub = \{1, 2, 3, 4, 5, 6, 7\}$.

$RV = \{\}$.

$S = \{(1,6), (6,5), (5,4), (4,3), (3,2), (2,7)\}$

MST = 10 + 25 + 22 + 12 + 16 + 14 = 99.
(Value)