

A B 10

A E 3

~~B~~ E 4

B C 2

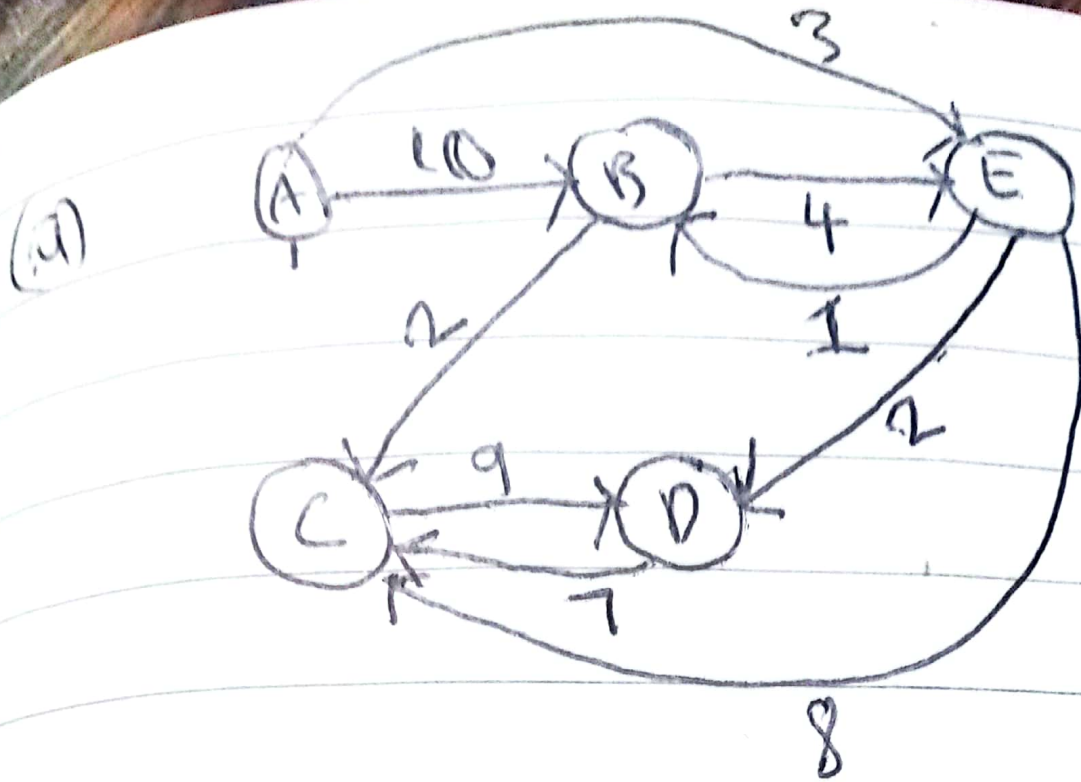
E B 1

E D 2

E C 8

C D 9

~~D~~ C 7



(b)

	A	B	C	D	E
A	0	10	2	3	4
B	1		2	4	
C	2			9	
D	3		7		
E	4	1	8	2	

(c)

A	B	C	D	E
0	1	2	3	4

0(A) → 1(B) → 4(E)

1(B) → 2(C) → 4(E)

2(C) → 3(D)

3(D) → 2(C)

4(E) → 1(B) → 2(C) → 3(D)

3(D)

(d) I would use Dijkstra's algorithm to find the shortest path between node A to all other nodes in the graph because Dijkstra's

algorithm
approach
algorithm
shortest
mini
S = {
0(A)

∴ S =
D =

algorithm uses the greedy approach just like Prim's algorithm to find the shortest path tree with minimum cost.

$S = \{ \}$, then:-

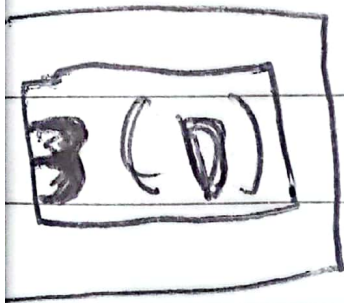
$0(A)$; $S = \{A\}$; $D = \{0, \infty, \infty, \infty, \infty\}$

Next step:- Since,

$A \rightarrow E < A \rightarrow B$

& $A \rightarrow E$ is also $<$

$A \rightarrow B \rightarrow E$,

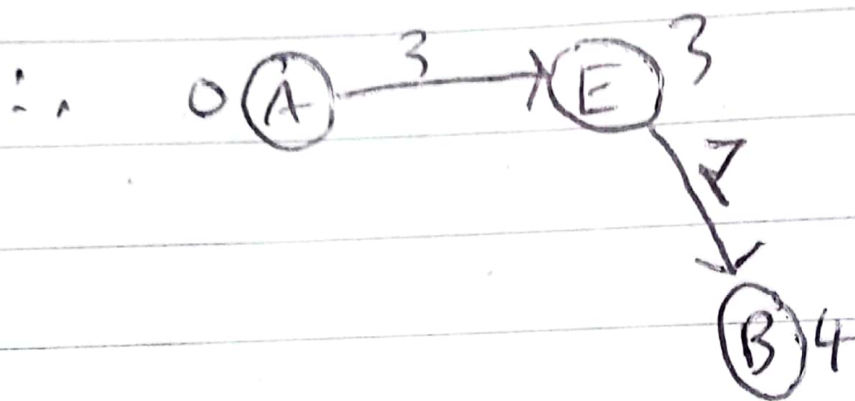


$\therefore S = \{A, E\}$;

$D = \{0, 3, \infty, \infty, \infty\}$

Next step:- Since, $A \rightarrow E \rightarrow B$
 $A \rightarrow B$

~~& also $A \rightarrow E \rightarrow B$~~
 & also has the cheapest
 cost of traversal compared
 to all the other ^{remaining} nodes,
 it will be traversed
 next.



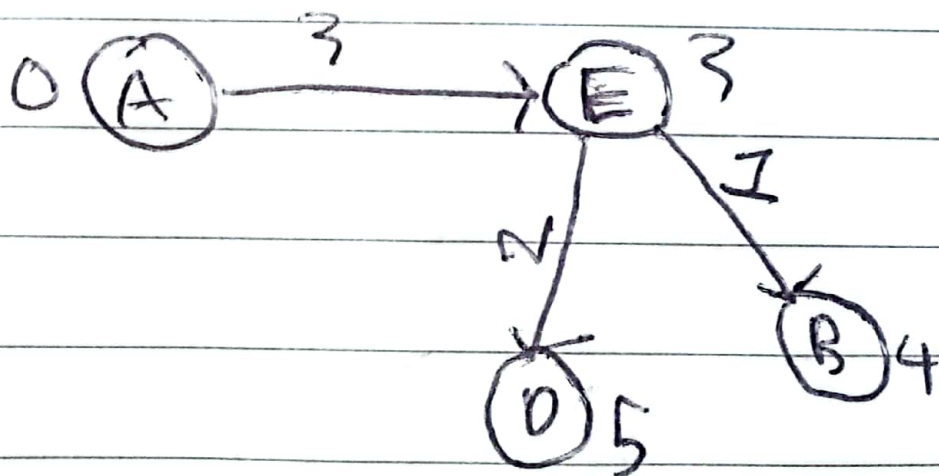
$$\therefore S = \{A, E, B\};$$

$$D = \{0, 3, 4, \infty, \infty\}$$

Next step:- Since, $A \rightarrow E \rightarrow D$
 $< A \rightarrow B \rightarrow E \rightarrow D$

& also, $A \rightarrow E \rightarrow D < A \rightarrow B \rightarrow C \rightarrow D$
 & also, $A \rightarrow E \rightarrow D < A \rightarrow E \rightarrow C \rightarrow D$

& it also has the cheapest cost among all remaining nodes, it will be traversed next.



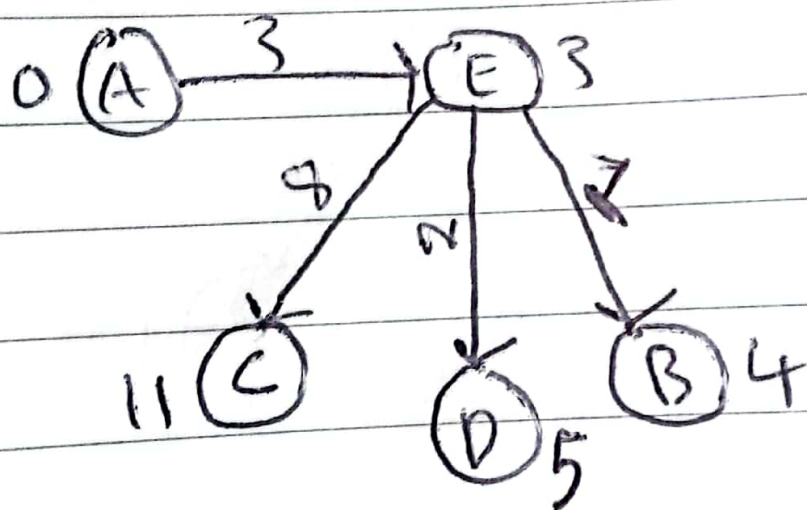
$$S = \{A, E, B, D\}$$

$$V = \{0, 3, 4, 5, \infty\}$$

Final step - Since, $A \rightarrow E \rightarrow C$
 $< A \rightarrow B \rightarrow E \rightarrow D$
 \downarrow
 C

& also, $A \rightarrow E \rightarrow C < A \rightarrow E \rightarrow D$ C
 & also, $A \rightarrow E \rightarrow C < A \rightarrow B \rightarrow C$.

C is also the least remaining node with the highest cost and it will be traversed next.



$$S = \{A, E, B, D, C\}$$

$$V = \{0, 3, 4, 5, 11\}$$

<u>Vertex</u>	<u>Minimum Cost</u>	<u>Path</u>
$A \rightarrow B$	4	$A \rightarrow E \rightarrow B$

<u>Question</u>	<u>Minimum Cost</u>	<u>Path</u>
$A \rightarrow C$	11	$A \rightarrow E \rightarrow C$
$A \rightarrow D$	5	$A \rightarrow E \rightarrow D$
$A \rightarrow E$	3	$A \rightarrow E$