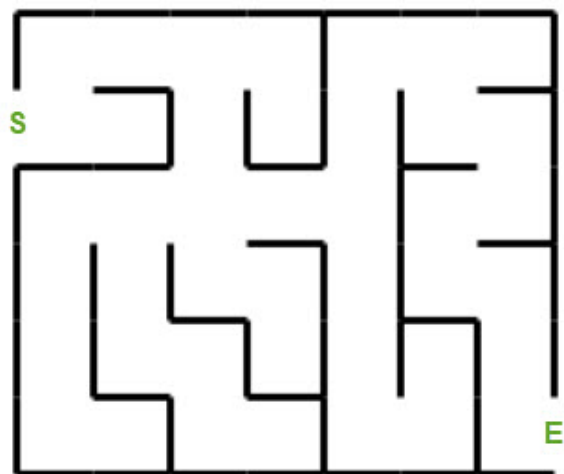
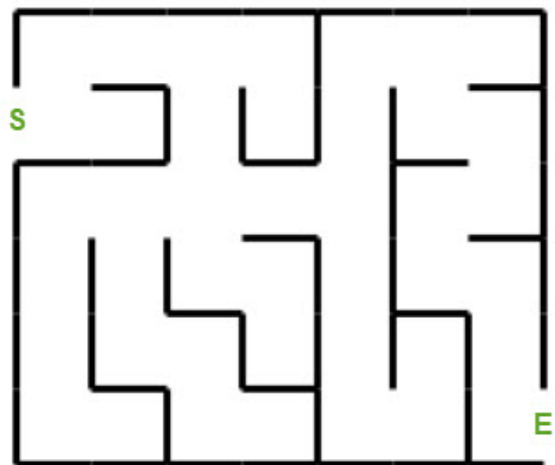


Q6. Use Dijkstra's Algorithm to find the shortest path of the following maze.

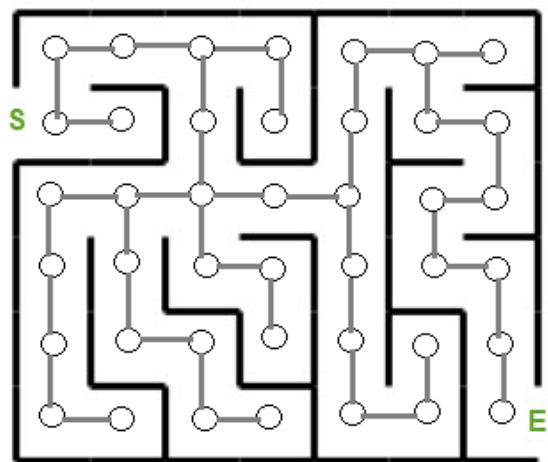


Ans:

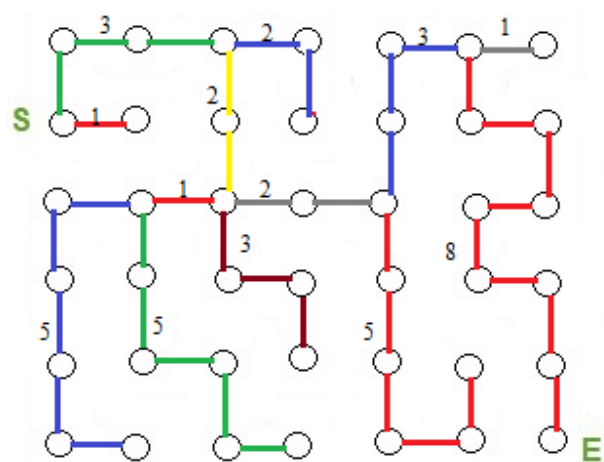
Step 1:



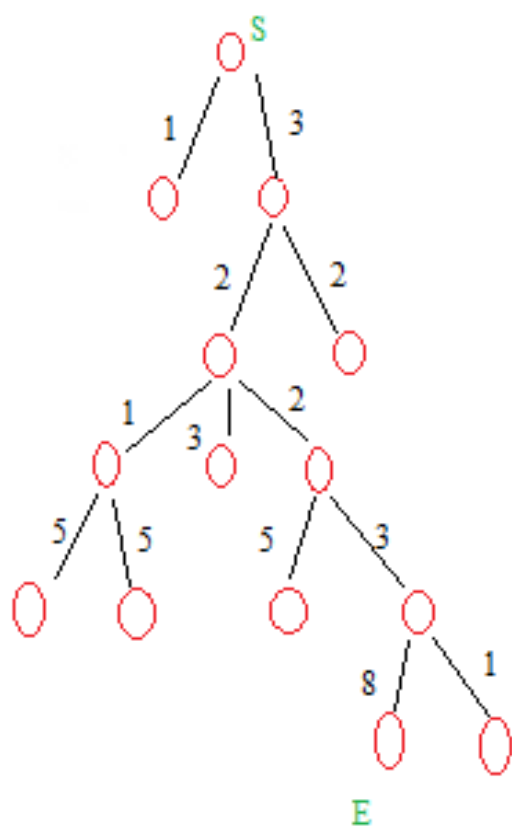
Step 2:



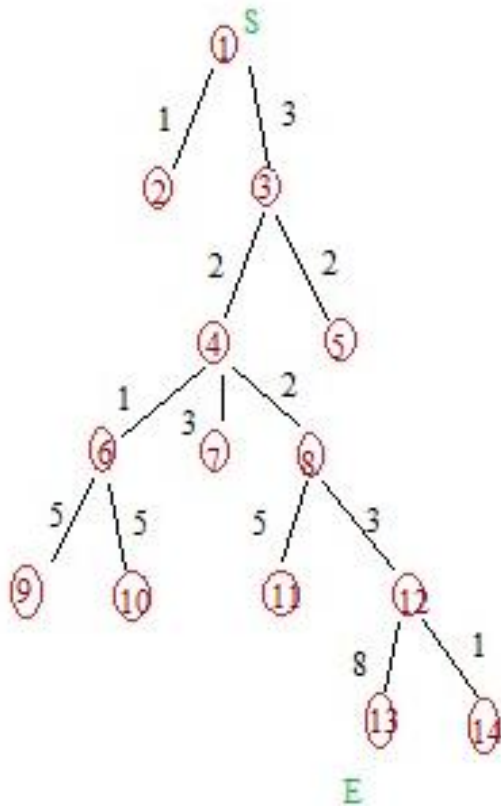
Step 4:



Step 5:



Dijkstra's Algorithm:



1. $V1 \rightarrow V2 = 2$ (Dead End)

$V1 \rightarrow V3 = 3 \Rightarrow$ pick (3)

$V1 \rightarrow V3$

2. $V3 \rightarrow V5 = 2$ (Dead End)

$V3 \rightarrow V4 = 2 \Rightarrow$ pick (5)

$V1 \rightarrow V3 \rightarrow V4$

3. $V4 \rightarrow V7 = 3$ (Dead End)

$V4 \rightarrow V6 = 1 \Rightarrow$ pick (6)

$V1 \rightarrow V3 \rightarrow V4 \rightarrow V6$

4. $V6 \rightarrow V9 = 5$ (Dead End)

$V6 \rightarrow V10 = 5$ (Dead End)

Reverse back (5)

$V1 \rightarrow V3 \rightarrow V4$

5. $V4 \rightarrow V8 = 2 \Rightarrow$ pick (7)

$V1 \rightarrow V3 \rightarrow V4 \rightarrow V8$

6. $V8 \rightarrow V11 = 5$ (Dead End)

$V8 \rightarrow V12 = 3 \Rightarrow$ pick (10)

$V1 \rightarrow V3 \rightarrow V4 \rightarrow V8 \rightarrow V12$

7. $V12 \rightarrow V14 = 1$ (Dead End)

$V12 \rightarrow V13 = 8 \Rightarrow$ pick (18)

$V1 \rightarrow V3 \rightarrow V4 \rightarrow V8 \rightarrow V12 \rightarrow V13$

Reach E:

Shortest path is : $V1 \rightarrow V3 \rightarrow V4 \rightarrow V8 \rightarrow V12 \rightarrow V13$

Minimum distance: 18