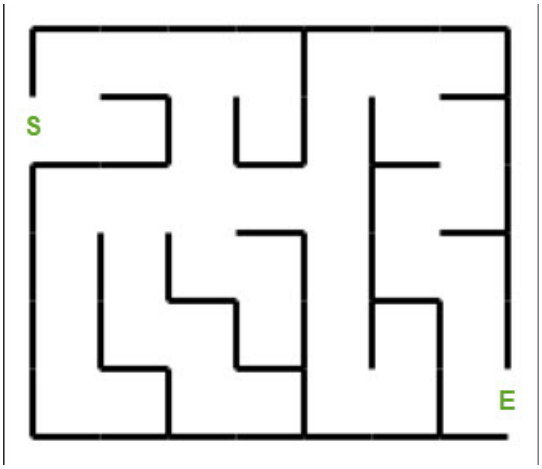
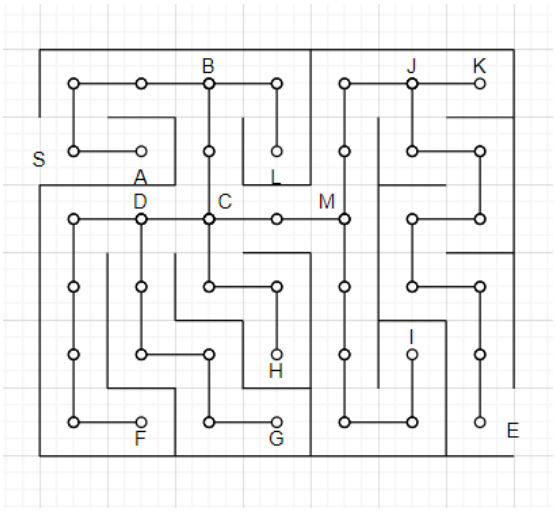
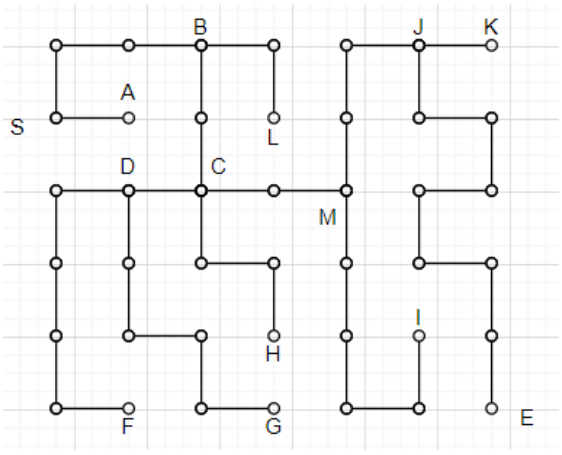
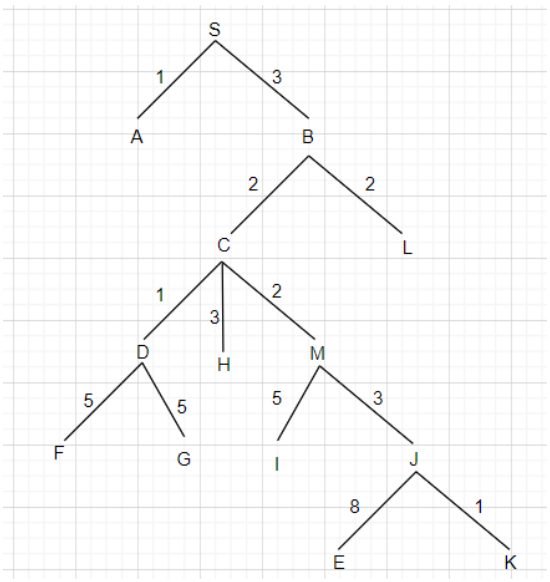
Step 1: Please convert the following maze into a graph









Step 2: Use Breadth First Traversal (BFT) to find the route from S to E

1. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
0	0	0	0	0	0	0	0	0	0	0	0	0	0

Queue:

2. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	0	0	0	0	0	0	0	0	0	0	0	0	0

Queue: S

1) Add S to the queue

2) Mark S as visited

3. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	0	0	0	0	0	0	0	0	0	0	0	0	0

Queue:

Print: S

1) Remove S from the queue

2) Print S

4. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	0	0	0	0	0	0	0	0	0	0	0

Queue: B A

Print: S

1) Add A, B to the queue

2) Mark A, B as visited

5. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	0	0	0	0	0	0	0	0	0	0	0

Queue: B

Print: S A

1) Remove A from the queue

2) Print A

6. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	0	0	0	0	0	0	0	0	0	0	0

Queue:

Print: S A B

1) Remove B from the queue

2) Print B

7. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	0	0	0	0	0	0	0	0	0

Queue: L C

Print: S A B

1) Add L, C to the queue

2) Mark L, C as visited

8. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	0	0	0	0	0	0	0	0	0

Queue: L

Print: S A B C

1) Remove C from the queue

2) Print C

9. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	0	0	0	0	0	0

Queue: M H D L

Print: S A B C

1) Add D, H, M to the queue

2) Mark D, H, M as visited

10. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	0	0	0	0	0	0

Queue: M H D

Print: S A B C L

1) Remove L from the queue

2) Print L

11. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	0	0	0	0	0	0

Queue: M H

Print: S A B C L D

1) Remove D from the queue

2) Print D

12. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	0	0	0	0

Queue: G F M H

Print: S A B C L D

1) Add F, G to the queue

2) Mark F, G as visited

13. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	0	0	0	0

Queue: G F M

Print: S A B C L D H

1) Remove H from the queue

2) Print H

14. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	1	1	0	0

Queue: G F

Print: S A B C L D H M

1) Remove M from the queue

2) Print M

15. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	1	1	0	0

Queue: J I G F

Print: S A B C L D H M

1) Add I, J to the queue

2) Mark I, J as visited

16. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	1	1	0	0

Queue: J I G

Print: S A B C L D H M F

1) Remove F from the queue

2) Print F

17. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	1	1	0	0

Queue: J I

Print: S A B C L D H M F G

1) Remove G from the queue

2) Print G

18. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K

1	1	1	1	1	1	1	1	1	1	1	1	0	0

Queue: J

Print: S A B C L D H M F G I

1) Remove I from the queue

2) Print I

19. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	1	1	0	0

Queue:

Print: S A B C L D H M F G I J

1) Remove J from the queue

2) Print J

20. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	1	1	1	1

Queue: K E

Print: S A B C L D H M F G I J

1) Add E, K to the queue

2) Mark E, K as visited

21. Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	1	1	1	1

Queue: K

Print: S A B C L D H M F G I J E

1) Remove E from the queue

2) Print E

22. Optional because the question only requests the route from S to E.

Visited:

S	A	B	C	L	D	H	M	F	G	I	J	E	K
1	1	1	1	1	1	1	1	1	1	1	1	1	1

Queue:

Print: S A B C L D H M F G I J E K

1) Remove K from the queue

2) Print K