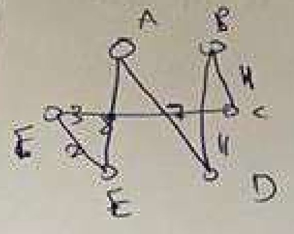


A (7, 8, 9, 11, 15)

B (4, 6, 11, 14, 16)

C (3, 4, 5, 12, 13)

D (7, 6, 11, 12, 15)

E (2, 3, 8, 14, 15)

F (2, 9, 6, 9, 16)

Next neighbour

So Cost 35

* Christofred Question →

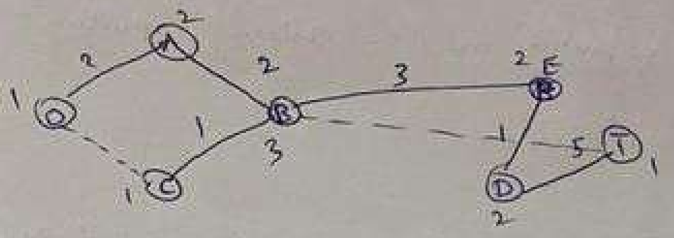
Quiz

	O	A	B	C	D	E	T
O	0	2	4	4	8	7	12
A	2	0	2	3	6	5	11
B	4	2	0	X	4	3	9
C	4	3	X	0	5	4	10
D	8	6	4	5	0	X	5
E	7	5	3	4	X	0	6
T	12	11	9	10	5	6	0

Find the least no on the matrix

then see the no in decreasing way and see if there is cycle or not

① MST



* no of tours, based on nodes

$\frac{(n-1)!}{2}$

② S = {O, A C, B, T}

$\frac{14}{2} = 2$

OC - BT = $C_{OC} + C_{BT}$ = 4 + 9 = 13 ←

OB - CT = $C_{OB} + C_{CT}$ = 4 + 10 = 14

OT - CB = $C_{OT} + C_{CB}$ = 13 + 1 = 14

③ walk = {O, A, B, T, D, E, B, C, O}

④ = {O, A, B, T, D, E, C, O} = 27 Cost

or

③ walk = {O, C, B, E, D, T, B, A, O}

④ = {O, C, B, E, D, T, A, O}

Cost = 27

⑦

stion 1: (7 points)

Number of possible tours in the undirected complete graph G with 5 vertices is :

a) 60
b) 30
c) 24
d) 12
e) 6

Christofides' heuristic is an effective practical heuristic that has the best-known worst-case performance bound for the traveling salesman problem on complete networks satisfying the triangle-inequality

a) True
b) False

For complete graphs with positive arcs, always the cost of the optimal MST is less than or equal to the cost of optimal TSP

a) True
b) False

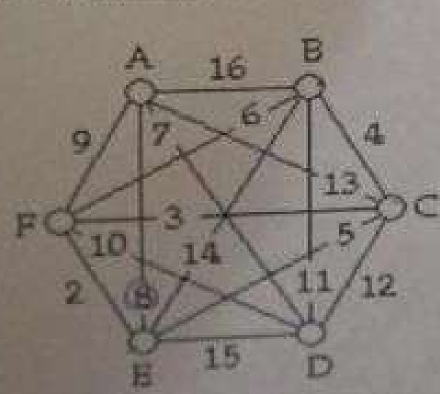
4. Christofides heuristic will produce a walk with the same total cost regardless of which is node is selected in the initialization.

a) True
b) False

5. Given a set of nodes N and a set of arcs representing a spanning tree T, the number of nodes with odd degree with respect to the arc set T is even.

a) True
b) False

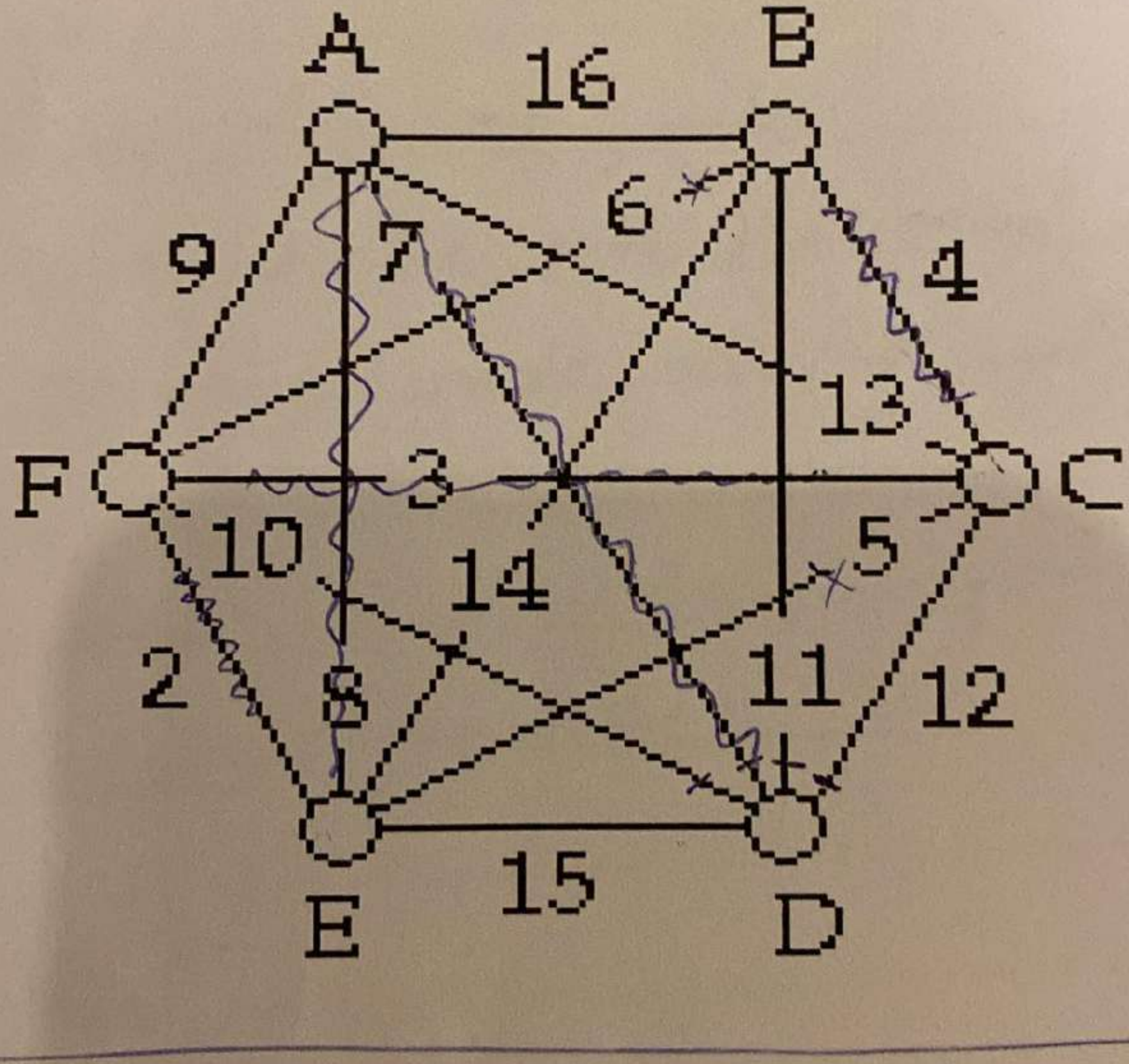
6. A delivery truck must deliver packages to 6 different store locations (A, B, C, D, E, and F). The trip must start and end at A. The graph below shows the distances (in miles) between locations. We want to minimize the total distance traveled.



The nearest-neighbor algorithm starting at vertex A yields the Tour ____ cost is ____

answer questions (1 - 4)

ing symmetric, undirected network G where the numb
se that your goal is to find a good traveling salesman t



llowing table that shows the lower bounds using s

	Lower bound
	24 + 5 = 29
	34
	[illegible]