

Q1.

Node	Neighbors (Cost)	Heuristic h(n)
A	B(3), C(5)	10
B	D(4), E(6)	8
C	F(5)	7
D	G(5)	4
E	G(3)	2
F	G(4)	3
G	Goal	0

1. Apply the A* algorithm to find the shortest path from A to G.
2. Calculate and tabulate g(n), h(n), and f(n) at every step.
3. Draw the search tree.
4. Write the final optimal path and total cost.

Q2.

Location	Connected To (Cost)	Heuristic to Goal
Main Gate	Admin(4), Library(6)	12
Admin	Lab(5)	9
Library	Lab(3), Hostel(7)	8
Lab	Canteen(4)	5
Hostel	Canteen(3)	6
Canteen	Goal	0

1. Apply A* to find the shortest route from Main Gate to Canteen.

2. Show all $f(n)$ calculations clearly.
3. Identify the optimal path and total travel cost.

Q3.

City	Connected Cities (Cost)	Heuristic to Destination
S	A(2), B(6)	12
A	C(4), D(7)	10
B	D(3)	8
C	E(5)	6
D	E(2)	5
E	T(4)	0
T	Goal	0

1. Use the A* algorithm to find the shortest path from S to T.
2. Compute g, h, and f values for each expanded node.
3. Show the final optimal route and total cost.

Q4.

Node	Connected To (Cost)	Heuristic $h(n)$
R	A(4), B(5)	11
A	C(6)	9
B	C(3), D(6)	8
C	E(4)	6
D	E(2)	5
E	G(3)	0
G	Goal	0

1. Apply the A* search algorithm from R to G.
2. Draw the search tree with $f(n)$ values.
3. Find the optimal delivery path and total cost.

Q5.

Location	Connected To (Cost)	Heuristic to Hospital
Home	X(3), Y(5)	10
X	Z(6)	8
Y	Z(2), W(7)	7
Z	Hospital(4)	0
W	Hospital(3)	4
Hospital	Goal	0

1. Apply A* to find the minimum-time path from Home to Hospital.
2. Show all open list and closed list updates.
3. Write the final path and total travel cost.