ID: 18101064

Ans to the Que. No: 1

$h(a) = 0+1 = 1$

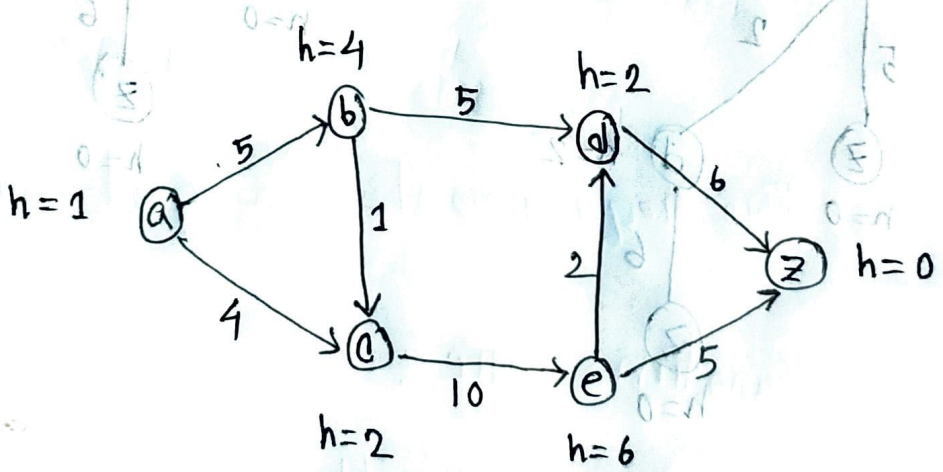
$h(b) = 1+3 = 4$

$h(c) = 1+1 = 2$

$h(d) = 0+2 = 2$

$h(e) = 4+2 = 6$

$h(z) = 0$



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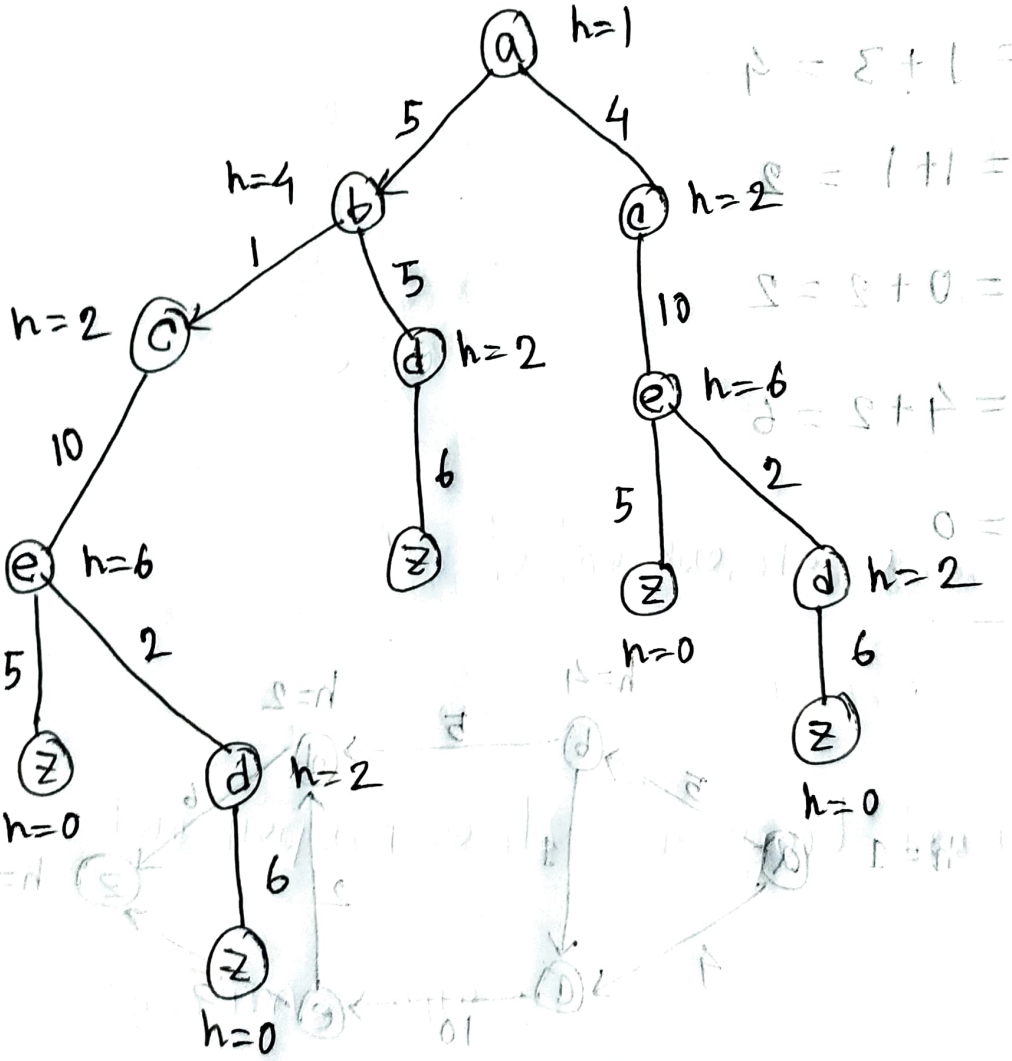
Search Tree:



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A* Search :

Iteration	O-F	C-F
1	a	b , c 5+4 4+2
2.	a, c,	b. e 5+4, 14+6
~~3~~	~~a/e/e~~	~~b / d / z~~ ~~5+4 / 10+2 / 16+0~~
3	a, c, b	d, e 10+2 14+6
4	a, c, b, d	z , e 16+0 14+6
5	a, c, b, d, z	z 19+0

Path Return : A → B → D → Z

Cost : 16

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Path:

Ans to the Que. No: 2

Two requirements for good heuristic functions are:

1) Admissible

2) consistency

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Mathmatical Relation of Admissible:

$$0 \leq h(n) \leq h^*(n)$$

here, $h^*(n)$ is estimated cost that means heuristic value $h(n)$ should be greater than or equal to 0 (zero). and $h(n)$ should be equal or less than the estimated cost value of $h(n)$

Mathmatical Relation of consistency:

$$h(n) - h(m) \leq cost(n, m)$$

That means n node and m node heuristic value differene must be less than or equal to total cost of node m and n.