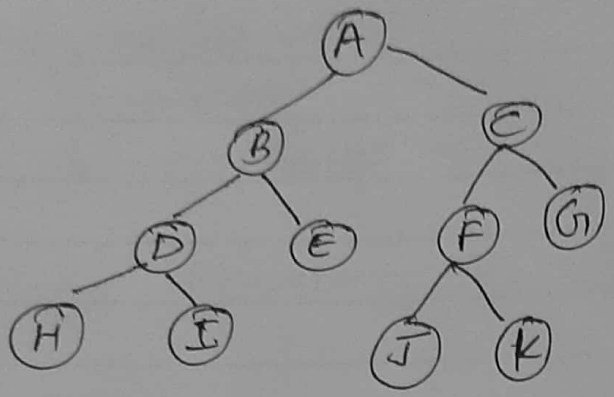
YASH KUMAR PANSE
19BCE7289
AI - Assignment

Difference between DFS, DLS and DFS

BFS	DFS	DLS
1) It stands for Breadth first search	It stands for depth first search	It stands for depth limited search
2) Time complexity is $O(V+E)$	T.C. is $O(V+E)$	T.C. is $O(b^l)$
3) It uses queue data structure	It uses stack data structure	It uses stack data structure
4) It will provide a solution if exists	More efficient than BFS	It is memory efficient
5) It needs lot of time if sol^n is away from root node	It may go to infinite loop	Not optimal for more than 1 solution

Teacher's Sig

Que.



Lvl 0
Lvl 1
Lvl 2
Lvl 3

(i) By BFS:

Root node : A
goal state : J

Traversed path : A → B → C → D → E → F → G → H → I → J

Since, cost of each path = 1

Total cost = 1+1+1+1+1+1+1+1+1 = 9

(ii) By DFS:

Root node : A
goal state : J

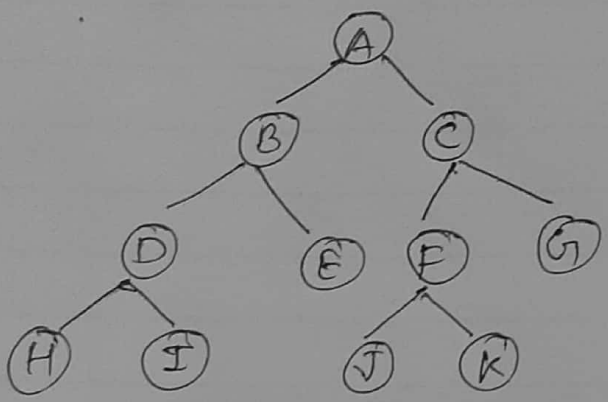
Traversed path : A → B → D → H → I → E → C → F → J

Total cost = 1+1+1+1+1+1+1+1

= 8

Teacher's Signature :

(iii) By DLS:



Lvl 0
Lvl 1
Lvl 2
Lvl 3

Root node: A
goal state: J

Let limit of depth be level 3

Then, Traversed path: A → B → D → H → I → E → C → F → J

∴ Total path cost: 1+1+1+1+1+1+1+1

= 8