

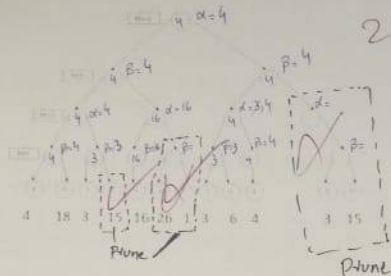
BFS would be better because it is:

Output DFS: ADFEJICBHI

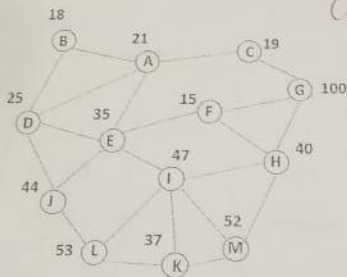
Output BFS: ABLDGHEFIJ

- complete (always give result).
- give optimal solution (best possible solution out of all)
- $O(b^d)$ time and space complexity.
- covers whole state space.

- b) Consider a game tree scenario in which children nodes are visited from left to right. Apply the Alpha-Beta pruning technique to this game tree mentioned below. In the solution, you have to draw the tree by applying Alpha-Beta pruning algorithm and write down the proper values of all the empty nodes, also mention the values of Alpha and Beta with their nodes and highlight the pruned branches by red arrows. (1 + 2 = 03 marks)



- c) Apply hill climbing to the following tree. Node 'A' is your initial node and your goal is to reach **global maximum**, which in this case is node 'G'. The values of cost/heuristic function are also mentioned. Show the final path and any intermediate state that is necessary. (3 + 1 = 04 marks).

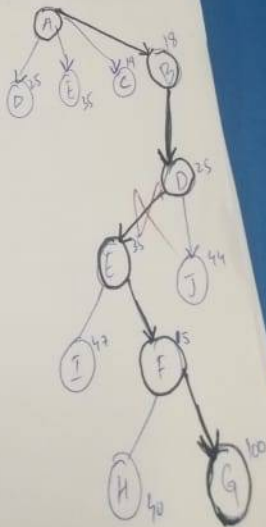


~~A B G~~

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Final Path = A-B-D-E-~~K~~-G

Intermediate State = ~~mentioned~~ with blue arrow



- c) Clearly Identify the PEAS in scenario. A smart home security system is being developed to monitor and secure a residence. It should detect intruders, control access, and provide alerts to homeowners. (1 + 1 + 1 + 1 = 04 marks)

	Performance	Environment	Actuators	Sensors
Smart Home Security System	detect intruders	Home	notification message or mobile phone etc	camera

- d) Consider the example of "image analysis" select the right option for each of the environment types amongst the following. Encircle the correct option. (0.5 x 4 = 02 marks)

Agent	Observable	Deterministic	Discrete
i. Single	i. Fully	i. Deterministic	i. Continuous
ii. Multi	ii. Partially	ii. Stochastic	ii. Discrete

CLO 2:

Apply various AI problem solving and searching techniques to a real-world problem.

Question 02: (10 marks)

- a) Perform DFS and BFS on the given tree and give output and answer which of these techniques is better and why? (1 + 1 + 1 = 03 marks)

