

AI Foundations & Applications (AI61005)

Class Test 1

September 6, 2021

Question Paper has THREE Parts. This is PART B – the second part

Time 20 Minutes

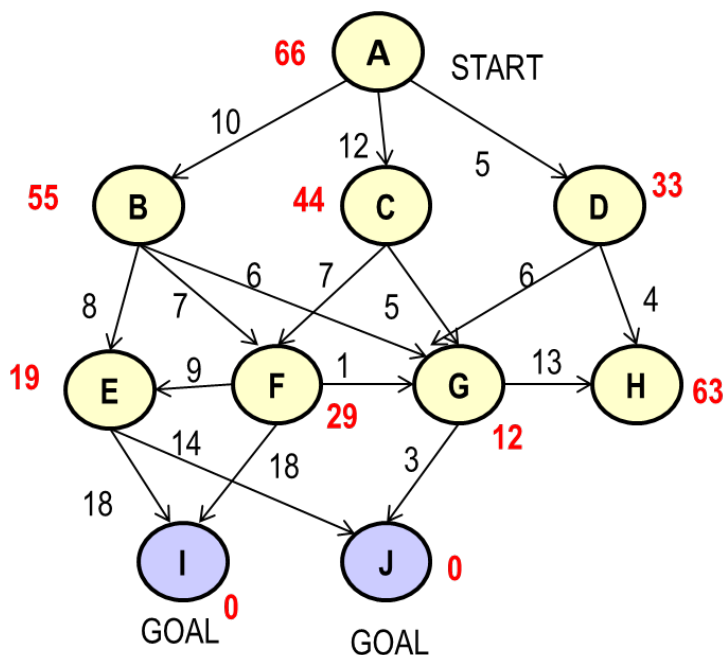
Answer All Questions

Write your name and roll number on every sheet.

Try to use one page to answer this question, at most a total of two pages

Combine the sheets into a single pdf and upload using the Google Form provided.

3. Consider the state space graph provided below. The edge costs are shown on the edges in black colour and the heuristic estimates are shown beside every node in red colour. We are using A* to solve a maximization problem.



Now answer the following questions:

- List in order the sequence of nodes expanded (selected from OPEN, expanded and put in CLOSED) by algorithm A* by mentioning the node names and $f(n)$ values, eg. A(6), etc.
- Did we obtain the optimal cost solution (True or False?). Justify your answer.
- Can you change the heuristic value at node B so that the solution obtained becomes different from that obtained in (a)?
- If answer to (c) is yes, mention the new heuristic value and list in order the sequence of nodes expanded by algorithm A* mentioning the node names and $f(n)$ values like in (a) above. If answer to (c) is no, then justify why it is not possible.

[4+2+2+2= 10 marks]