Roll No. Name: Signature:

CS 302 – Artificial Intelligence – Quiz 2 – March 2, 2022

Max Marks 30 *Weight 15 %* *Be Concise*

1. What is the value of the game tree depicted in Figure 1? Mark the best *strategy* for MAX. [6]

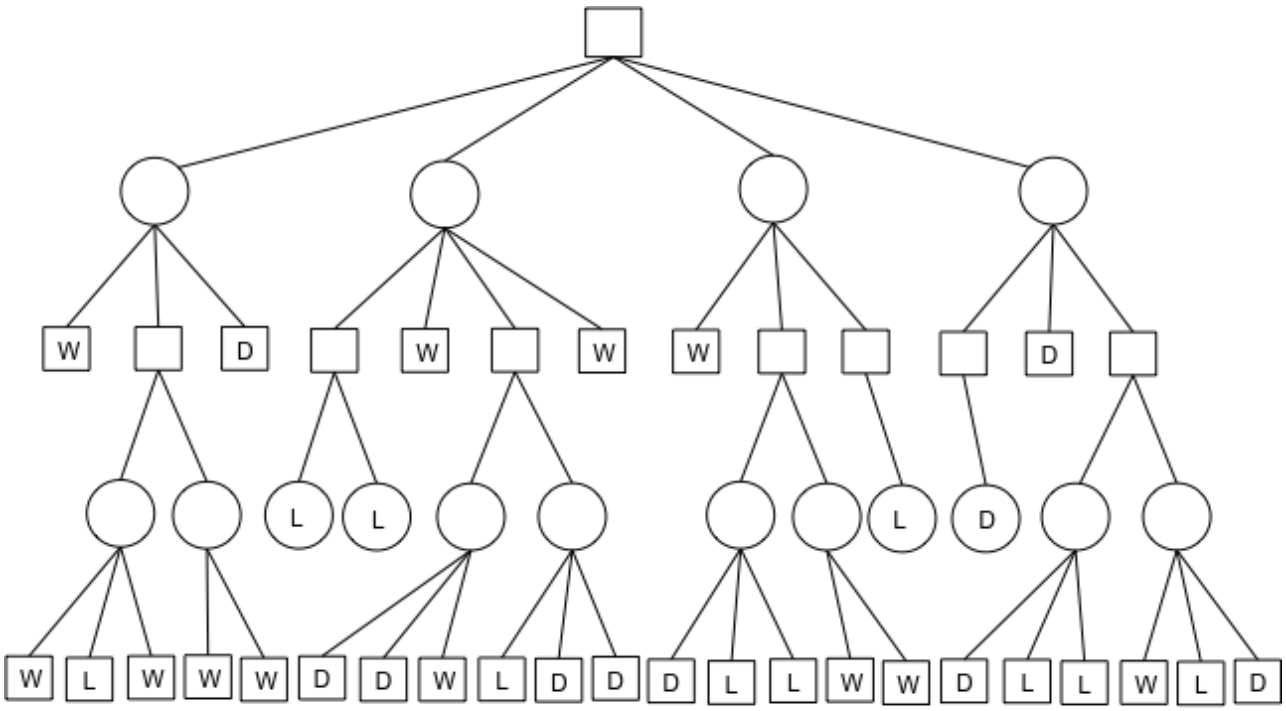
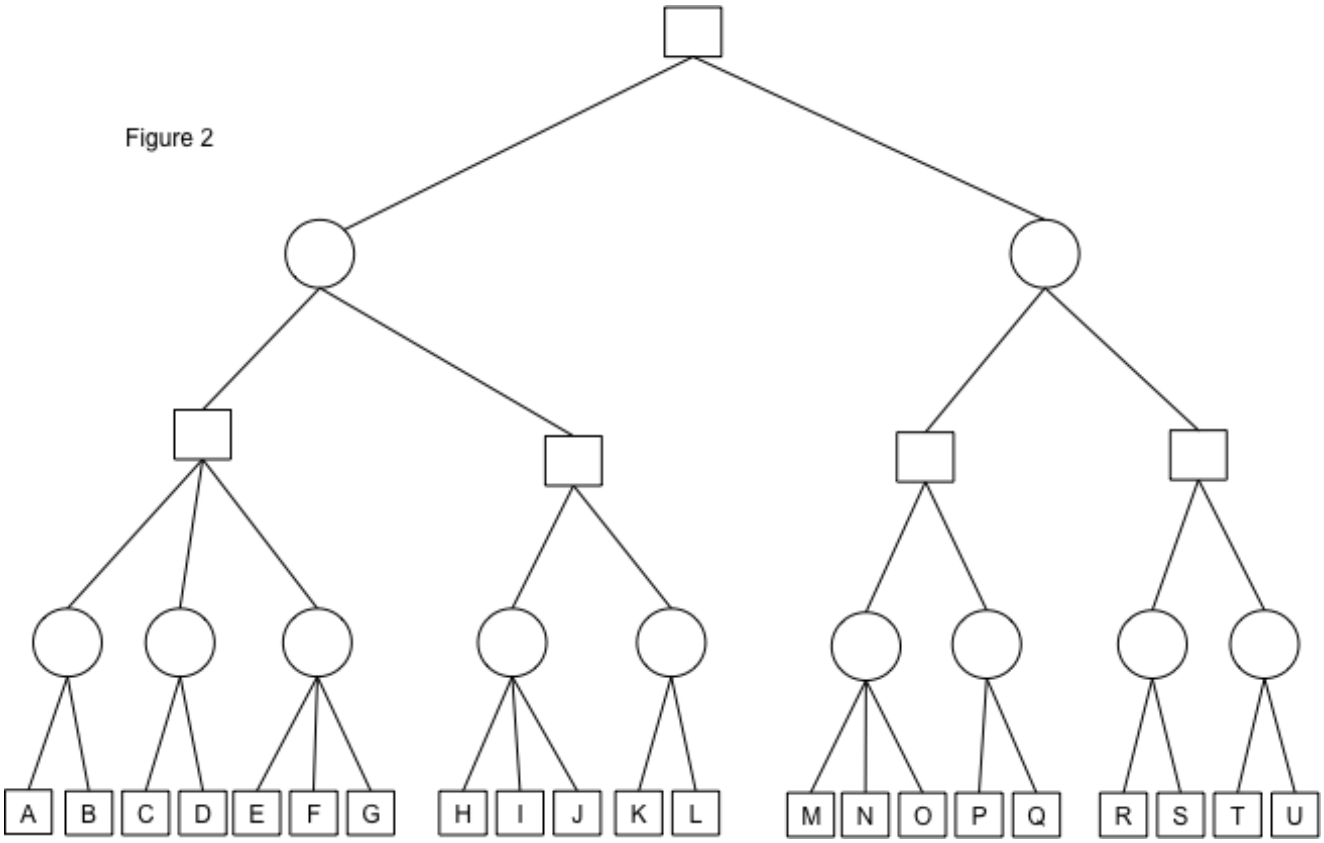


Fig. 1. A game tree

2. Label the leaf nodes, A – U, in the game tree below with values such that there are no cutoffs when the algorithm AlphaBeta searches from left to right. Label leaf *A* with the *last two digits of your roll number*. [10]

Figure 2



3. Show how the algorithm AO* will solve the problem depicted in Figure 3 below. The values in the nodes are heuristic values. Nodes with double circles are solved nodes, and the labels represent their actual cost. Assume that the cost of each edge is **10** units. Show the subgraph generated after each cycle, till the algorithm terminates. Clearly mark the solution found. Do you think the heuristic function is admissible? Explain.

[10]

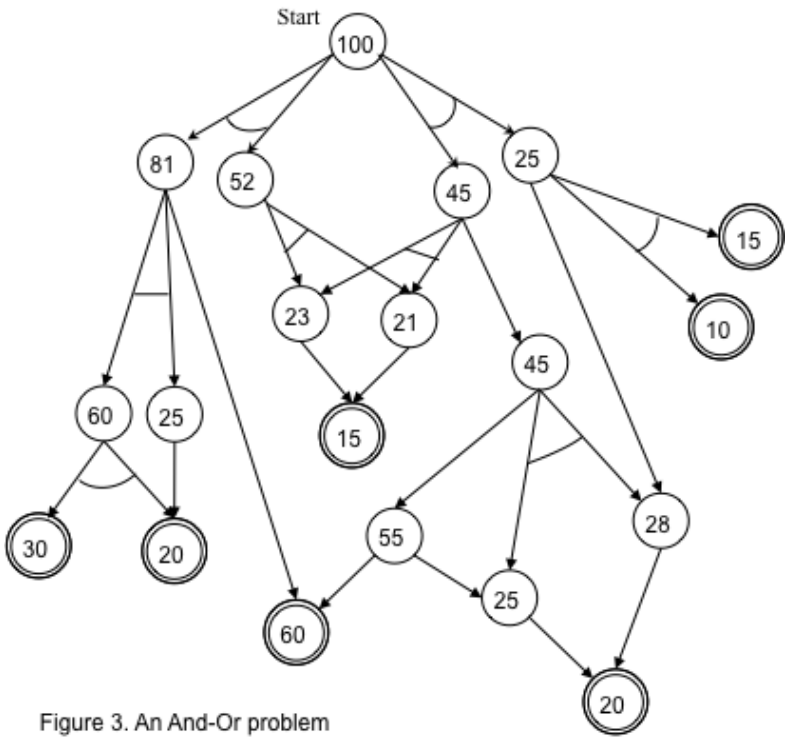


Figure 3. An And-Or problem

4. Explain with figure the influence of learning rate on the loss function when gradient descent technique is used. [4]

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