This is a practice exam, please do not submit any answers.

The final exam is individual, so please do not make any information exchange or do not discuss about the answers or ask anybody for help except the instructor. You can use any Internet resources for reading, you can search for the answers on any search engine (like Google) or you can use any textbooks.

For all the parts below, please provide an answer with explanations. You can submit your answers by writing in a word processor, or you can write into paper and scan/take photo and submit as an attachment to your mail.
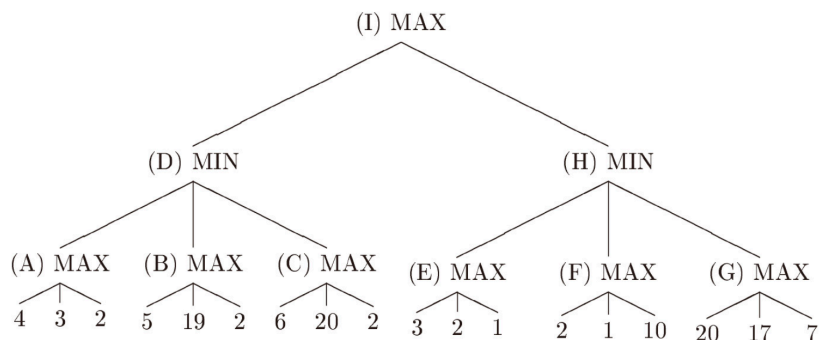
Question 1 :

Sample T/F

1. Breadth-first search and iterative-deepening search always find the same solution.
2. Best-first search can be thought of as a special case of A*.
3. The k-Nearest Neighbors approach scales well to high dimensional spaces

Sample Questions:

4.   A perceptron and a feed-forward, back-propagation neural network
5. What is the differene between minimax tree and maximax tree?
6. What are the differences of NLP and Computational Linguistics and Text Mining?
7. What is the role of bias in neural networks

Question 2:

What is the decision of Max at node (I) if the minimax algorithm is used for the above search tree? Using the Alpha-Beta pruning, what branches of the tree can be pruned?

Question 3:

"Pie, Sam and Tom belong to the Hawkeyes Club. Every member of the Hawkeyes Club is either a skier or a mountain climber or btoh. No mountain

climber likes rain, and all skiers like snow. Tom dislikes whatever Pie likes and likes whatever Pie dislikes. Pie likes rain and snow. "

Using the predicates H(x) (x is a member of Hawkeyes Club), S(x) (x is a skier), M(x) (x is a mountain climber), and L(x,y) (x likes y), please formulate the above facts in First Order Logic.

Question 4:

Decide if the boolean function NAND (negation of AND) can be computed by a perceptron of two inputs and one output. If yes, provide such a perceptron; if no, provide a justification.

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