

Question 1: (25 Marks)

Briefly describe each of the following (within 2-3 lines only):

- Successor function.
- Evaluation function.
- Utility function.
- Min-max algorithm.
- Alpha-Beta pruning.

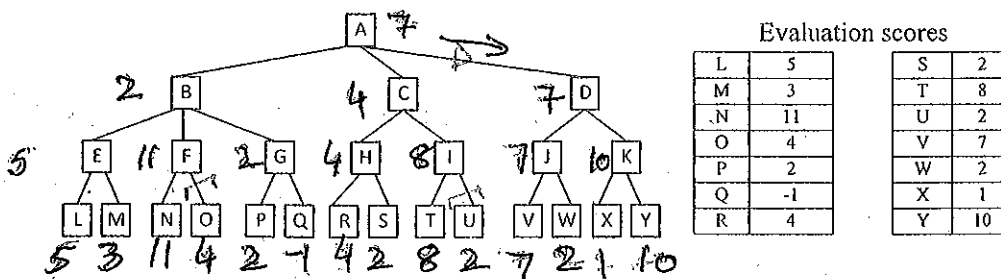
Question 2: (10 Marks)

Mark each sentence with T (True) or F (False):

- ~~F~~ a) Min-max selects the best possible move.
- ~~F~~ b) Alpha-beta may choose a different decision than that of min-max.
- ~~T~~ c) CSP formulation includes variables, domains and constraints.
- ~~T~~ d) Solving a CSP using MRV may result in different solution to the problem.
- ~~F~~ e) In non-chance-games, order and exact values of leave nodes are both important.

Question 3: (25 Marks)

Consider the following search tree in a virtual game. Assume A is a maximization node.



- Which move will be chosen according to min-max algorithm? (Show your computations)
- Which state(s) will be avoided using α - β pruning? O, U

Question 4: (30 Marks)

Consider the nine-men-mores game.

- Show how to represent states of this game (give proper data structure).
- Write pseudo-code to generate successor of a given state (for simplicity, assume that all pieces are on the board).

Question 5: (10 Marks)

Which move is going to be chosen by max in the following game tree (show your calculations):

