CH1

A system is rational if it does:

- (●) the right thing given what it knows
- ( ) the right thing all the time
- ( ) the right thing most of the time
- ( ) the right thing based on actual circumstances

____ was originally called 'the Imitation game'

- (●) The Turning Test
- ( ) LISP
- ( ) The Halting Problem
- ( ) None of the given answers

Which AI approach is adopted in the course?

- (●) Acting rationally
- ( ) Acting Humanly
- ( ) Thinking rationally
- ( ) Thinking humanly

Irrefutable reasoning process is linked to which AI approach?

- (●) Thinking rationally
- ( ) Acting rationally
- ( ) Acting Humanl
- ( ) Thinking humanly

A computer passes the Turing Test if a human interrogator, after posing some written questions, cannot tell whether the written responses come from a person or from a computer.

- (●) True
- ( ) False

The rational-agent approach is more amenable to scientific development than approaches based on human behavior or human thought.

- (●) True
- ( ) False

CH2

What is the first step in designing an agent:

- (●) Specify the task environment
- ( ) Specify the performance measure
- ( ) Specify the actuators
- ( ) Specify the percepts

Agent rationality depends on:

- (●) All answers are correct
- ( ) Criterion of success
- ( ) Extent of perception of the environment state
- ( ) Possible actions

Rational agent can refer to:

- (●) All answers are correct
- ( ) A human
- ( ) A hardware
- ( ) A software

Which is true about agent function:

- (●) All answers are correct
- ( ) It maps any percept sequence to an action
- ( ) It can be implemented internally via an agent progran
- ( ) It can be viewed externally as a table

In stochastic environment, the next state is completely determined by the current state and the executed action

- ( ) True
- (●) False

A rational agent should learn what it can do to compensate for partial prior knowledge

- (●) True
- ( ) False

CH3

Time Complexity of graph Breadth First Search in worst case is? (V – number of vertices, E – number of edges)

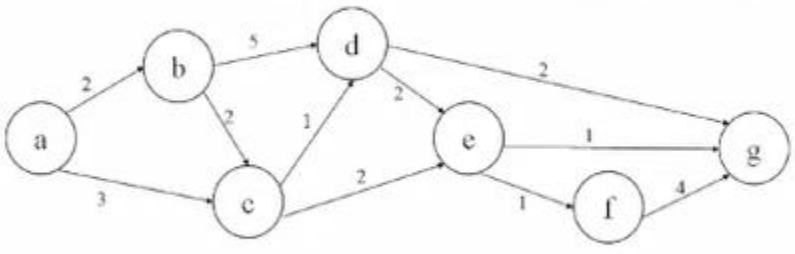
- (●) O(V + E)
- ( ) O(V)
- ( ) O(E)
- ( ) O(V * E)

What is the space complexity of Depth-first search?

- (●) O(bm)
- ( ) O(b)
- ( ) O(bl)
- ( ) O(m)

Initial State: **b** Goal state: **g**
Strategy: **DFS**

Tie breaker: Alphabetical order. Write your answer in small letters without any separators (e.g. abcde).



CH4

What is the evaluation function in the greedy approach?

- (●) Heuristic function
- ( ) Path cost from start node to current node
- ( ) Path cost from start node to current node + heuristic function
- ( ) Average path cost from start node to current node + heuristic cost

A* algorithm is based on _____

- (●) best-first search
- ( ) breadth-first search
- ( ) depth-first search
- ( ) random search

What is the evaluation function in A* approach?

- (●) Path cost from start node to current node + heuristic function
- ( ) Heuristic function
- ( ) Path cost from start node to current node
- ( ) Average path cost from start node to current node + heuristic function

A heuristic is a way of trying _____

- All of the mentioned
- to discover something or an idea embedded in a program
- to search and measure how far a node in a search tree seems to be from the goal
- to compare two nodes in a search tree to see if one is better than the other

Best-first search can be implemented using the following data structure:

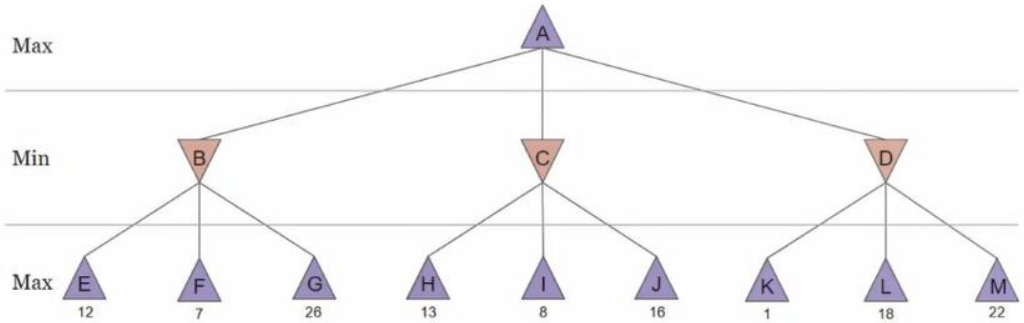
- Priority queue
- Queue
- Stack
- Circular linked list

CH5

QUESTION 1

4 points

In the given game tree, the root is a Max level.

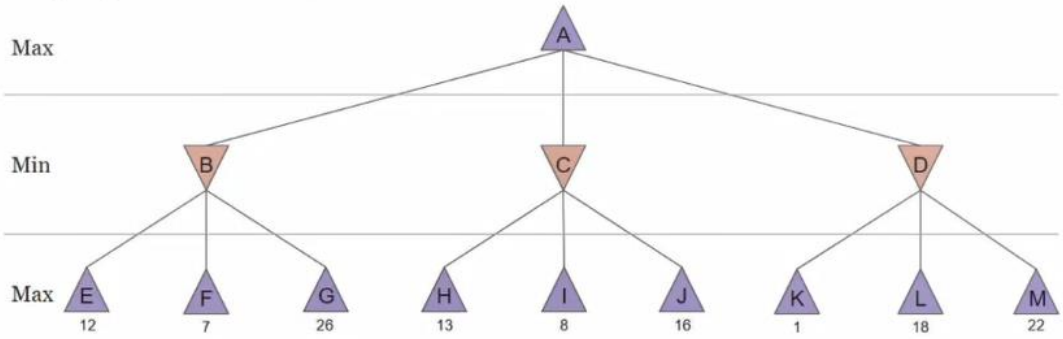


Apply Minimax algorithm and find out the move to be selected by Max.

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

Arial 3 (12pt)

In the given game tree, the root is a Max level.



Which states will be pruned using Alpha-Beta?

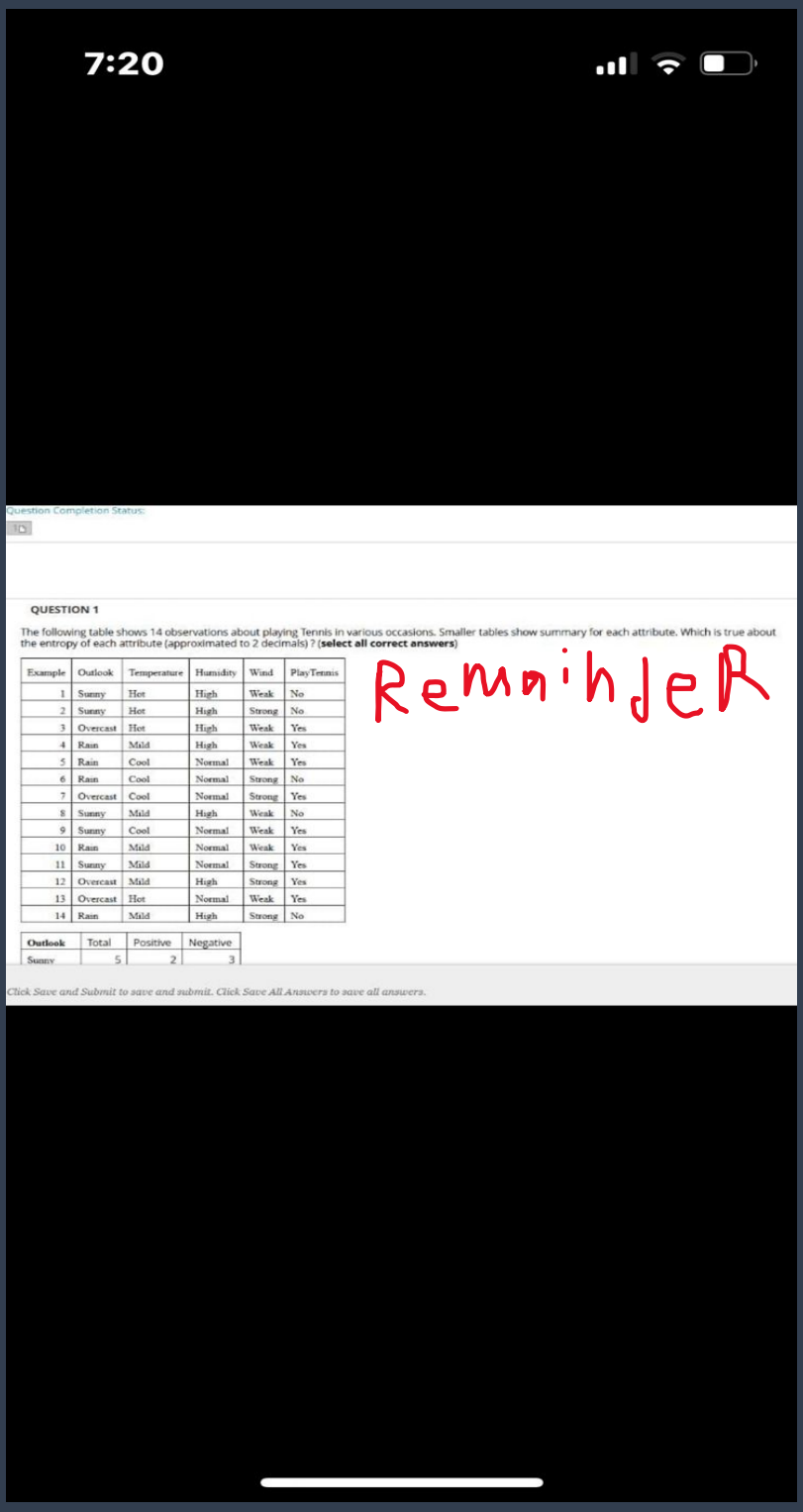
Write all states without spaces (e.g. EFG). In case for subtrees, list the roots only.

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

Arial 3 (12pt)

LM

ML chapter


7:20
Question Completion Status:
QUESTION 1
The following table shows 14 observations about playing Tennis in various occasions. Smaller tables show summary for each attribute. Which is true about the entropy of each attribute (approximated to 2 decimals) ? (select all correct answers)
Example Outlook Temperature Humidity Wind PlayTennis
1 Sunny Hot High Weak No
2 Sunny Hot High Strong No
3 Overcast Hot High Weak Yes
4 Rain Mild High Weak Yes
5 Rain Cool Normal Weak Yes
6 Rain Cool Normal Strong No
7 Overcast Cool Normal Strong Yes
8 Sunny Mild High Weak No
9 Sunny Cool Normal Weak Yes
10 Rain Mild Normal Weak Yes
11 Sunny Mild Normal Strong Yes
12 Overcast Mild High Strong Yes
13 Overcast Hot Normal Weak Yes
14 Rain Mild High Strong No
Outlook Total Positive Negative
Sunny 5 2 3
Reminder
Click Save and Submit to save and submit. Click Save All Answers to save all answers.

7:21

Question Completion Status:

Temperature	Total	Positive	Negative
Hot	4	2	2
Mild	6	4	2
Cool	4	3	1
Total	14	9	5

Humidity	Total	Positive	Negative
High	7	3	4
Normal	7	6	1
Total	14	9	5

Wind	Total	Positive	Negative
Weak	8	6	2
Strong	6	3	3
Total	14	9	5

- [x] Temperature: 0.91
- [x] Humidity: 0.79
- [ ] Wind: 0.76
- [ ] Outlook: 0.79

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

7:21

Question Completion Status:

13	Overcast	Hot	Normal	Weak	Yes
14	Rain	Mild	High	Strong	No

Outlook	Total	Positive	Negative
Sunny	5	2	3
Overcast	4	4	0
Rain	5	3	2
Total	14	9	5

Temperature	Total	Positive	Negative
Hot	4	2	2
Mild	6	4	2
Cool	4	3	1
Total	14	9	5

Humidity	Total	Positive	Negative
High	7	3	4
Normal	7	6	1
Total	14	9	5

Wind	Total	Positive	Negative
Weak	8	6	2
Strong	6	3	3
Total	14	9	5

☑ Temperature: 0.91

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

FOL + PL CHAPTER

What is the equivalent of the proposition $(p \rightarrow q) \vee (q \rightarrow r)$?

- (●) $(\neg p \vee q) \vee (\neg q \vee r)$
- ( ) $(p \wedge q) \vee (q \wedge r)$
- ( ) $(p \wedge \neg q) \vee (\neg q \wedge r)$
- ( ) $(p \rightarrow r) \vee (q \rightarrow r)$

What is the equivalent of the proposition $(p \vee q) \wedge (p \rightarrow r)$ in disjunctive normal form (DNF)?

- (●) $(p \wedge q) \vee (p \wedge \neg r)$
- ( ) $(p \vee q) \wedge (p \rightarrow r)$
- ( ) $(p \vee q) \wedge (p \vee \neg r)$
- ( ) $(p \vee q) \wedge (\neg p \vee r)$

الخيارات كلها غلط أتوقع بس هذا الخيار الصح كان

Which is the proper meaning of the following FOL sentence:

$\forall x \; Animal(x) \wedge eats(x, meat) \rightarrow (Predator(x) \vee Herbivore(x))$?

- ( ) For every animal that eats meat, it must be a predator
- ( ) For every animal that eats meat, it must be a herbivore
- ( ) For every animal that eats meat, it cannot be either a predator or a herbivore
- (●) For every animal that eats meat, it can be either a predator or a herbivore

Which represents the logical sentence:

Some subjects are liked by all students

- ○ $\forall x, \exists y\ student(x) \wedge Subject\ (y) \rightarrow likes\ (x, y)$
- ○ $\forall x, \exists y\ student(x) \wedge Subject\ (y) \wedge likes\ (x, y)$
- ○ $\exists\ y, \forall x, student(x) \wedge Subject\ (y) \wedge likes\ (x, y)$
- ◉ $\exists\ y, \forall x, student(x) \wedge Subject\ (y) \rightarrow likes\ (x, y)$