AI

Section Id :	64065349292
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	9
Number of Questions to be attempted :	9
Section Marks :	25

Display Number Panel :	Yes
Section Negative Marks :	0
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	640653103489
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 53 Question Id : 640653698463 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "DEGREE LEVEL : AI: SEARCH METHODS FOR PROBLEM SOLVING (COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?
CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

Options :

6406532332699. ✔ YES

6406532332700. ✖ NO

Sub-Section Number :	2
Sub-Section Id :	640653103490
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 54 Question Id : 640653698464 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

Printed graph sheets (hard copy) will be provided for registered candidates only.

Options :

6406532332701. ✔ Printed graph sheets were provided to me.

6406532332702. ✖ Printed graph sheets were not provided to me.

6406532332703. ✖ I did not use graph sheets.

Sub-Section Number :	3
Sub-Section Id :	640653103491
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653698465 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (55 to 59)

Question Label : Comprehension

SEARCH

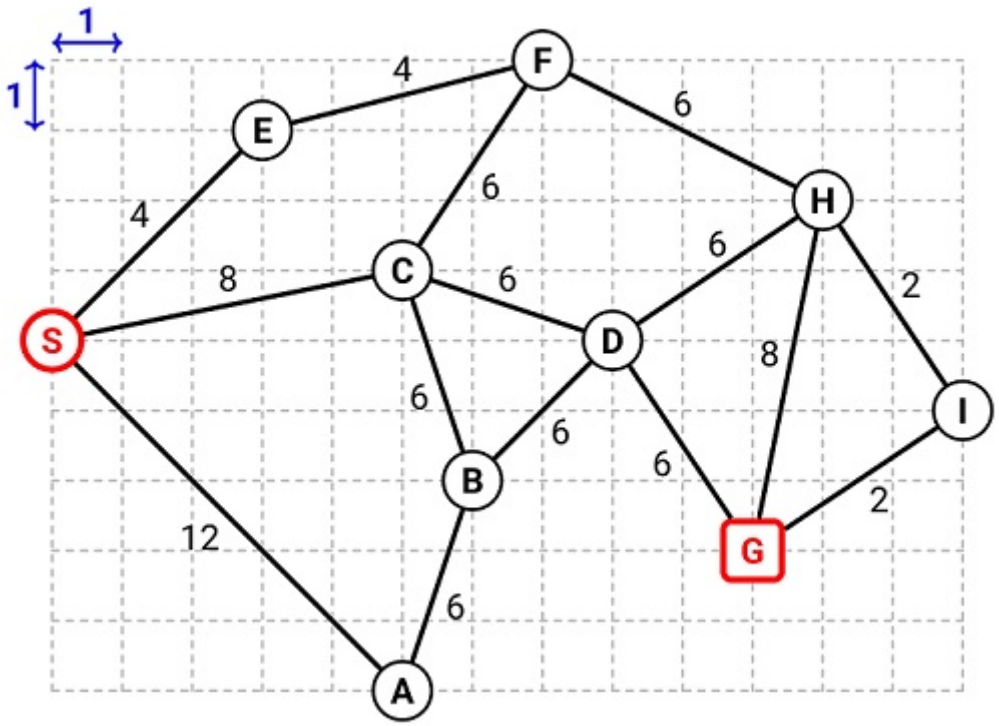
The figure shows a map on a uniform grid where each tile is 1x1 in size.

The start node is S and the goal node is G.

The MoveGen function returns nodes in alphabetical order.

Use Manhattan Distance as the heuristic function.

Tie-breaker: If several nodes have the same cost, use node labels to break the tie.



Based on the above data, answer the given subquestions.

Sub questions

Question Number : 55 Question Id : 640653698466 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

What is the path found by the Best First Search algorithm? Enter the path as a comma separated list of node labels.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: S,X,Y,Z

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

S,A,B,D,G

Question Number : 56 Question Id : 640653698467 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

What is the path found by A* search algorithm? Enter the path as a comma separated list of node labels.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: S,X,Y,Z

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

S,C,D,G

Question Number : 57 Question Id : 640653698468 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

What is the path found by Branch-and-Bound search algorithm? Enter the path as a comma

separated list of node labels.

Use the Branch-and-Bound variation that avoids cyclic expansions like S,A,S,A,S,A,...

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: S,X,Y,Z

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

S,E,F,H,I,G

Question Number : 58 Question Id : 640653698469 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Choice Question

For the given map, which algorithm finds the shortest path from S to G?

Options :

6406532332707. ✖ A* Search Algorithm

6406532332708. ✔ Branch-and-Bound Search Algorithm

6406532332709. ✖ None of these

Question Number : 59 Question Id : 640653698470 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Choice Question

What can you say about the heuristic function for the given graph?

Options :

6406532332710. ✖ Admissible

6406532332711. ✔ Inadmissible

6406532332712. ✖ Partly admissible and partly inadmissible

6406532332713. ✖ Cannot be determined

Sub-Section Number :	4
Sub-Section Id :	640653103492
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653698471 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (60 to 63)

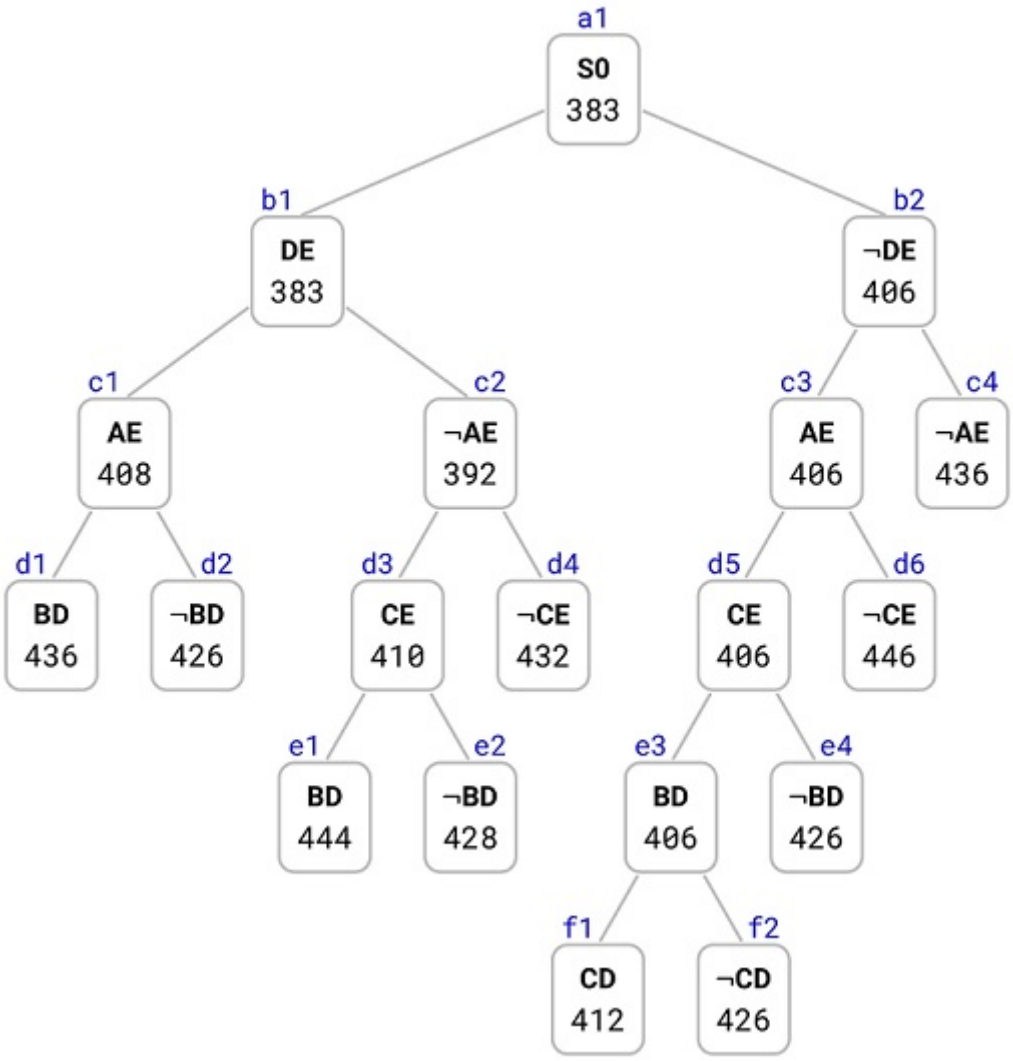
Question Label : Comprehension

TSP Branch-and-Bound

The TSP Branch-and-Bound algorithm is solving a TSP instance where the cities are A, B, C, ... and so on. The Branch-and-Bound search tree at the time when the algorithm has discovered the optimal tour is shown below.

Each node in the search tree displays an edge (either XY or ~XY), a cost value, and a unique reference number (a1, b1, b2, ..., c1, ..., d1, ..., e1, ..., f1, f2). Use the reference numbers to break ties. When required, enter the reference numbers in short answers.

What information can you glean from the search tree? Answer the sub-questions based on the information gleaned from the search tree.



Sub questions

Question Number : 60 Question Id : 640653698472 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Let S0 (ref. no. a1) be the first node to be refined, identify the next 4 nodes (2nd to 5th node) that are refined by the TSP Branch-and-Bound algorithm. Enter the nodes (node reference numbers) in the order they are refined.

Enter a comma separated list of node reference numbers.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: a9,b9,c9,d9

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

b1,c2,b2,c3

Question Number : 61 Question Id : 640653698473 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Which node represents the optimal tour and what is the cost of the optimal tour? Enter the node reference number and the tour cost in the text box, or enter NIL if it is not possible to determine the optimal tour.

Enter a node reference number followed by tour cost, separated by comma.
NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: a9,42

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

f1,412

Question Number : 62 Question Id : 640653698474 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Determine the number of cities in the TSP instance. Enter the number of cities in the text box, or

enter NIL if it is not possible to determine the number of cities.

Enter an integer.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: 42

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

5

Question Number : 63 Question Id : 640653698475 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Start from city A, what is the path representation of the optimal tour? Enter the path representation in the text box, or enter NIL if it is not possible to determine the optimal tour.

Enter a comma separated list of cities (city labels).

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: A,B,C

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Set

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

A,B,D,C,E

A,E,C,D,B

Question Id : 640653698476 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

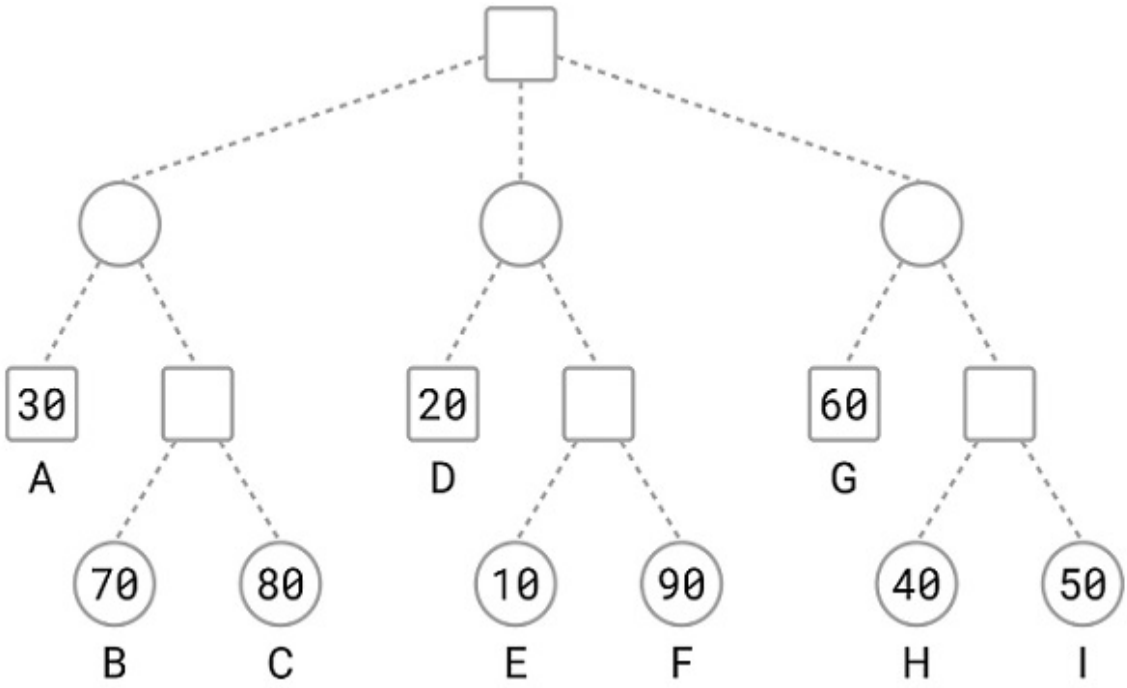
Question Numbers : (64 to 67)

Question Label : Comprehension

GAMES

The figure shows a game tree with evaluation function values at the horizon nodes.
The horizon nodes are labeled from A to I.
Use these labels to enter a horizon node or a list of horizon nodes in short answers (textbox).

Tie-breaker: when several nodes carry the same best cost then select the deepest node, if tie persists then select the leftmost of the deepest nodes to break the tie.



Based on the above data, answer the given subquestions.

Sub questions

Question Number : 64 Question Id : 640653698477 Question Type : MCQ Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Choice Question

Which of the following is a strategy for the MAX player?

Options :

6406532332718. ✖ A,D,G

6406532332719. ✔ D,E

6406532332720. ✖ E,F

6406532332721. ✖ G,H,I

Question Number : 65 Question Id : 640653698478 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

List the horizon nodes in the best strategy for MAX. Enter the node labels in alphabetical order.

Enter a comma separated list of node labels in alphabetical order.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: X,Y,Z

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

G,I

Question Number : 66 Question Id : 640653698479 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

List the horizon nodes pruned by Alpha-Beta.

Enter a comma separated list of node labels in alphabetical order.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: X,Y,Z

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

C,E,F

Question Number : 67 Question Id : 640653698480 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

List the horizon nodes not processed (neither LIVE nor SOLVED) by SSS*.

Enter a comma separated list of node labels in alphabetical order.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: X,Y,Z

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

B,C,E,F

Sub-Section Number :	5
Sub-Section Id :	640653103493
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653698481 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (68 to 70)

Question Label : Comprehension

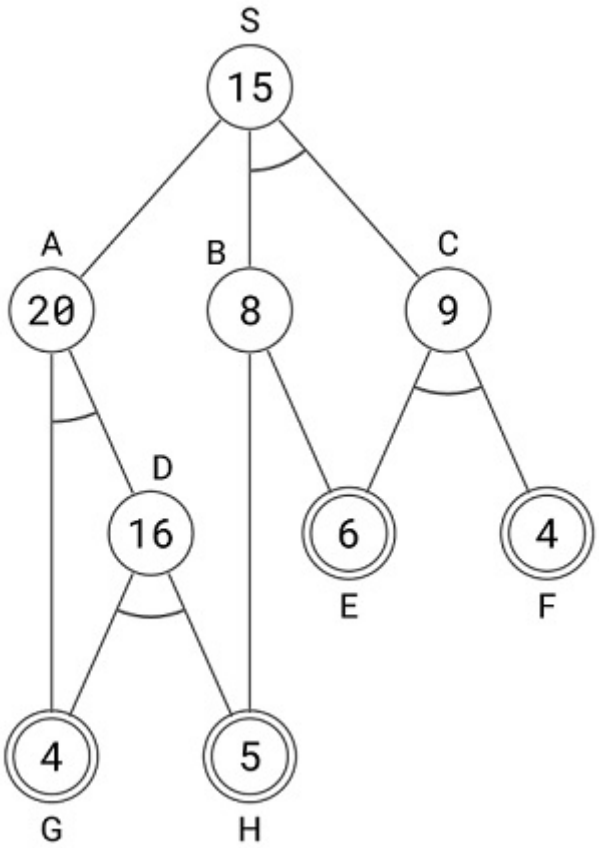
PROBLEM DECOMPOSITION

The figure shows an AND-OR graph that depicts how a problem S can be decomposed into one or more smaller problems. Nodes are uniquely identified by labels (S, A, B, ...). The number in each node is the heuristic estimate of the cost of solving that node.

Nodes shown in double lines are primitive nodes and their values are actual costs. Observe that a primitive node is added to the graph by its parent when the parent is expanded, and the primitive node is labeled as SOLVED and it will not be expanded subsequently.

The cost of each edge is 1 unit.

Tie-breaker 1: If several nodes have the same cost then break the tie using node labels.
Tie-breaker 2: For AND nodes, select the unsolved branch with the highest cost.



Use AO* algorithm to solve S, then answer the given subquestions.

Sub questions

Question Number : 68 Question Id : 640653698482 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

List the first three nodes (including S) expanded by AO* algorithm. List the nodes in the order they are expanded. Observe that primitive nodes are not expanded.

Enter a comma separated list of node labels.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: X,Y,Z

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Set

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

S,C,A

C,A,B

Question Number : 69 Question Id : 640653698483 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Determine the value of the start node S after each node is expanded. What are the values of S after the 1st, 2nd and 3rd nodes are expanded, respectively? Enter the 3 values in the textbox.

Enter a comma separated list of numbers.
NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.
Answer format: 12,42,17

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Set

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

19,21,22

21,22,20

Question Number : 70 Question Id : 640653698484 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

What is the final value of the start node S?

Enter a number.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: 42

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

20

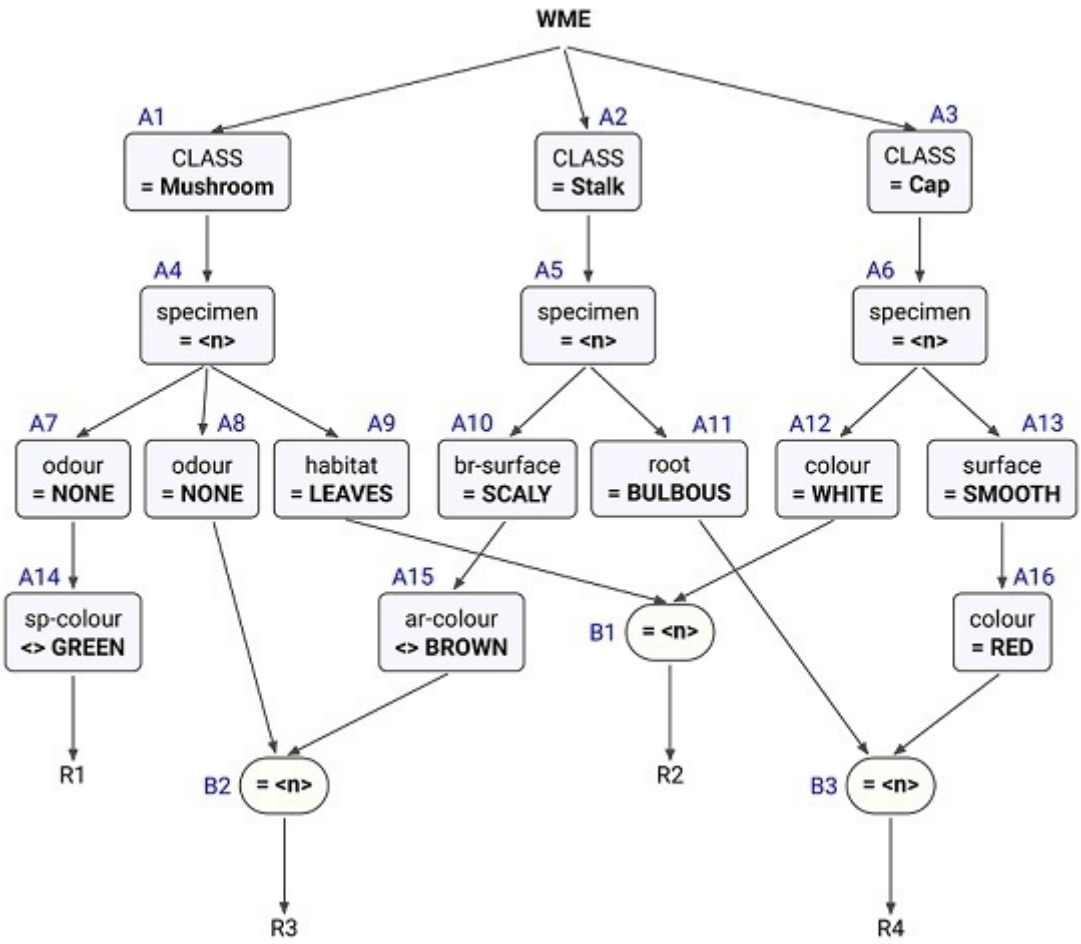
Question Id : 640653698485 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (71 to 73)

Question Label : Comprehension

RULE BASED EXPERT SYSTEMS

A part of the Rete Net that classifies mushrooms (as edible or poisonous) is shown in the figure. The labels A1, A2, ..., A10, A16, ..., B1, B2, B3, R1, ..., R4 uniquely identify the nodes in the network. When required, use the above label ordering to **break ties** and to enter short answers.



Run the Rete algorithm for the Working Memory shown below, the WMEs are in timestamp order. Assume that WMEs reside at appropriate Alpha nodes, and the Beta nodes point to WMEs residing in Alpha nodes.

```
101.  (Cap ^specimen C36  ^colour RED  ^surface SMOOTH)
102.  (Cap ^specimen A25  ^colour WHITE  ^surface SMOOTH)
103.  (Mushroom ^specimen X16  ^odour NONE  ^habitat LEAVES)
104.  (Mushroom ^specimen A25  ^odour NONE  ^habitat LEAVES)
105.  (Stalk ^specimen C36  ^root BULBOUS  ^ar-colour WHITE)
106.  (Stalk ^specimen X16  ^br-surface SCALY  ^ar-colour WHITE)
107.  (Mushroom ^specimen C36  ^odour NONE  ^sp-colour WHITE)
108.  (Mushroom ^specimen B49  ^odour ALMOND  ^sp-colour BROWN)
109.  (Stalk ^specimen B49  ^br-surface SMOOTH)
```

For each WME identify its location (node label) in the Rete Net, and prepare the conflict set for the first cycle, then answer the given subquestions.

Sub questions

Question Number : 71 Question Id : 640653698486 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following rule-data tuples are in the conflict-set?

Options :

6406532332728. ✔ R1,107

6406532332729. ✔ R2,102,104

6406532332730. ✔ R3,103,106

6406532332731. ✔ R4,101,105

6406532332732. ✖ R2,102,103

6406532332733. ✖ R3,104,106

Question Number : 72 Question Id : 640653698487 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

If the Inference Engine uses **Specificity** as the conflict resolution strategy then which of the following rule-data tuples will qualify?

Options :

6406532332734. ✖ R1,107

6406532332735. ✖ R2,102,104

6406532332736. ✔ R3,103,106

6406532332737. ✔ R4,101,105

6406532332738. ✖ R2,102,103

6406532332739. ✖ R3,104,106

Question Number : 73 Question Id : 640653698488 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Choice Question

If the Inference Engine uses **Recency** as the conflict resolution strategy then which of the following rule-data tuples will qualify?.

Options :

6406532332740. ✔ R1,107

6406532332741. ✖ R2,102,104

6406532332742. ✖ R3,103,106

6406532332743. ✖ R4,101,105

6406532332744. ✖ R2,102,103

6406532332745. ✖ R3,104,106

Sub-Section Number :	6
Sub-Section Id :	640653103494
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653698489 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (74 to 77)

Question Label : Comprehension

AUTOMATED PLANNING

The domain description of a Blocks World with a single one-armed robot is given below.

PREDICATES

```
armEmpty       The arm is not holding any block, it is empty.
holding(X)     The arm is holding X.
onTable(X)     X is on the table.
clear(X)       X has nothing above it, it is clear.
on(X,Y)        X is directly placed on Y.
```

OPERATORS

```
Pickup(X): pick up X from the table.

     Preconditions: { armEmpty, clear(X), onTable(X) }
     Add Effects  : { holding(X) }
     Del Effects  : { armEmpty, onTable(X) }

Putdown(X): place X on the table.

     Preconditions: { holding(X) }
     Add Effects  : { armEmpty, onTable(X) }
     Del Effects  : { holding(X) }

Unstack(X,Y): pick up X that is directly sitting on Y.

     Preconditions: { armEmpty, clear(X), on(X,Y) }
     Add Effects  : { clear(Y), holding(X) }
     Del Effects  : { armempty, on(X,Y) }

Stack(X,Y): place X directly on top of Y.

     Preconditions: { holding(X), clear(Y) }
     Add Effects  : { armEmpty, on(X,Y) }
     Del Effects  : { holding(X), clear(Y) }
```

Consider the planning problem with the following start state and goal description.

Start State

{ armEmpty, on(P,Q), clear(P), clear(R), onTable(Q), onTable(R) }

Goal Description

{ on(P,R), on(R,Q), onTable(Q) }

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 74 Question Id : 640653698490 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following are **applicable** actions in the start state?

Options :

6406532332746. ✔ Pickup (R)

6406532332747. ✔ Unstack (P,Q)

6406532332748. ✖ Stack (R,Q)

6406532332749. ✖ Stack (P,R)

6406532332750. ✖ Putdown (Q)

Question Number : 75 Question Id : 640653698491 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following are **relevant** actions in the goal state?

Options :

6406532332751. ✖ Pickup (R)

6406532332752. ✖ Unstack (P,Q)

6406532332753. ✔ Stack (R,Q)

6406532332754. ✔ Stack (P,R)

6406532332755. ✔ Putdown (Q)

Question Number : 76 Question Id : 640653698492 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

In the planning graph, which of the following are mutex action pairs in Layer 1?

Options :

6406532332756. ✔ Unstack (P,Q), Pickup (R)

6406532332757. ✔ Unstack (P,Q), NOP-ACTION for armEmpty

6406532332758. ✔ Pickup (R), NOP-ACTION for onTable (R)

6406532332759. ✖ Stack (P,R), Stack (R,Q)

6406532332760. ✖ Stack (P,R), Putdown (Q)

Question Number : 77 Question Id : 640653698493 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

In the planning graph, which of the following are mutex proposition pairs in Layer 1?

Options :

6406532332761. ✔ clear (Q), armEmpty

6406532332762. ✔ holding (P), holding (R)

6406532332763. ✖ onTable (R), clear (R)

6406532332764. ✖ onTable (R), onTable (Q)

Sub-Section Number :	7
Sub-Section Id :	640653103495
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653698494 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

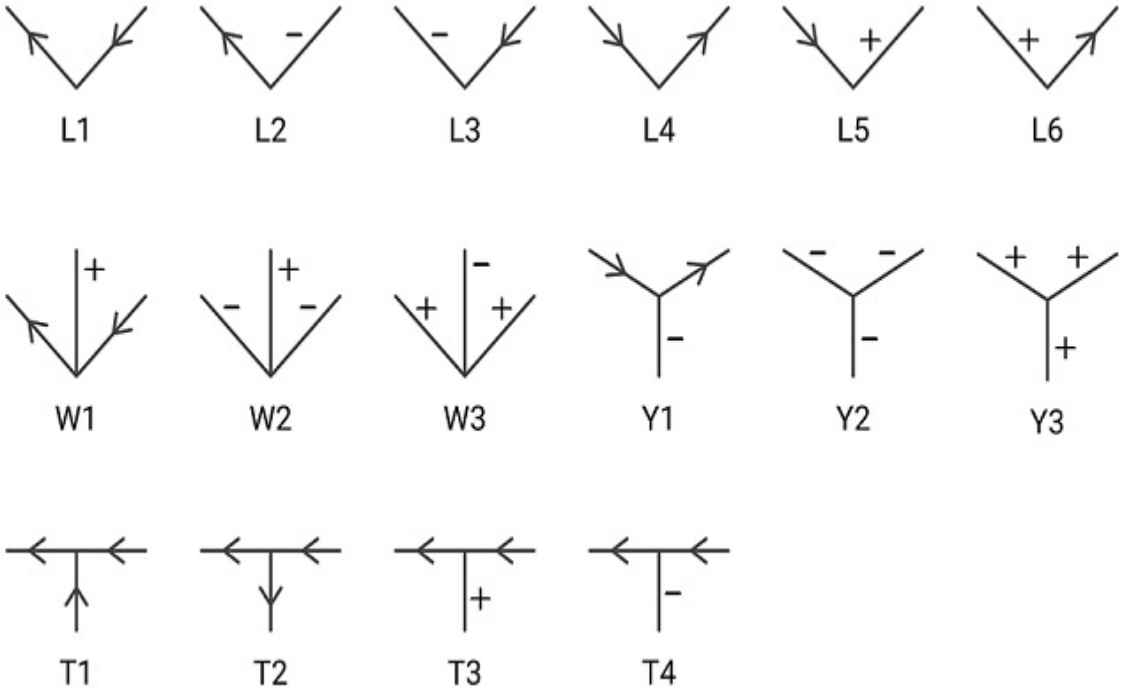
Question Numbers : (78 to 79)

Question Label : Comprehension

CONSTRAINT SATISFACTION

The set of junctions (L, W, Y and T type junctions) that occur in a 2D line drawing of trihedral objects is provided below. The in-plane clockwise/counterclockwise rotations of these junctions are valid as well. These junctions provide constraints on the possible edge assignments (convex, concave, arrow) for the edges/lines in 2D line drawings of trihedral objects.

The junctions carry unique labels: L1, L2, L3, L4, L5, L6, T1, T2, T3, T4, W1, W2, W3, Y1, Y2, Y3. When required, use the labels in short answers.



Note: A 2D line drawing of trihedral objects is considered to be consistent if all the edges and junctions can be assigned labels that are consistent with each other, otherwise the drawing is considered to be inconsistent and all labels are reset to NIL.

Apply a suitable algorithm to assign consistent labels to edges/junctions in the 2D line drawings in the sub-questions. Choose a suitable edge and junction order for solving the problems.

Based on the above data, answer the given subquestions.

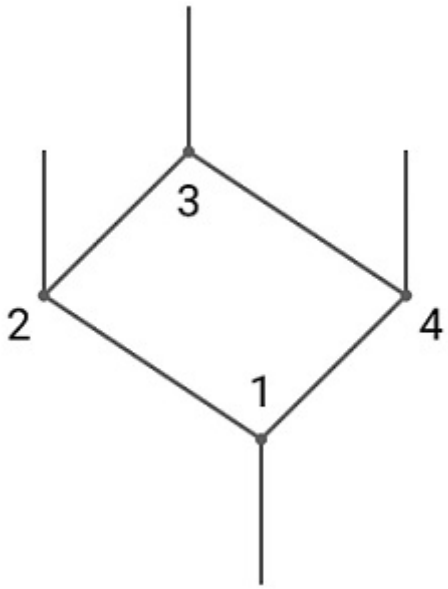
Sub questions

Question Number : 78 Question Id : 640653698495 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Assign consistent labels to all the edges and junctions in the 2D line drawing shown below. Enter the labels of the junctions 1, 2, 3, 4 in the text box, in that order. Otherwise enter NIL if the drawing has no consistent label assignment.



Enter a comma separated list of junction labels, or enter NIL.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: L9,Y9,T9,W9

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Set

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

Y1,W1,Y3,W2

Y1,W2,Y3,W1

Y2,W2,Y3,W2

Y3,W3,Y2,W3

Question Number : 79 Question Id : 640653698496 Question Type : SA Calculator : None

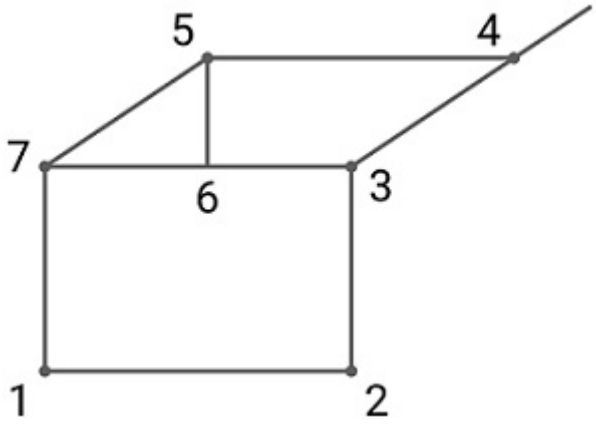
Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Assign consistent labels to all the edges and junctions in the 2D line drawing shown below.

Enter the labels of the junctions 1, 2, 3, 4 in the text box, in that order. Otherwise enter NIL if the drawing has no consistent label assignment.



Enter a comma separated list of junction labels, or enter NIL.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEOUS CHARACTERS.

Answer format: L9,Y9,T9,W9

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

NIL