

6406532049850. ✖ 5

6406532049851. ✖ 6

6406532049852. ✖ 7

AI

Section Id :	64065341411
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	8
Number of Questions to be attempted :	8
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 :	64065388801
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 48 Question Id : 640653614018 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 :

6406532049853. ✓ YES

6406532049854. ✗ NO

Sub-Section Number :	2
Sub-Section Id :	64065388802
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653614019 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 : (49 to 53)

Question Label : Comprehension

## SEARCH

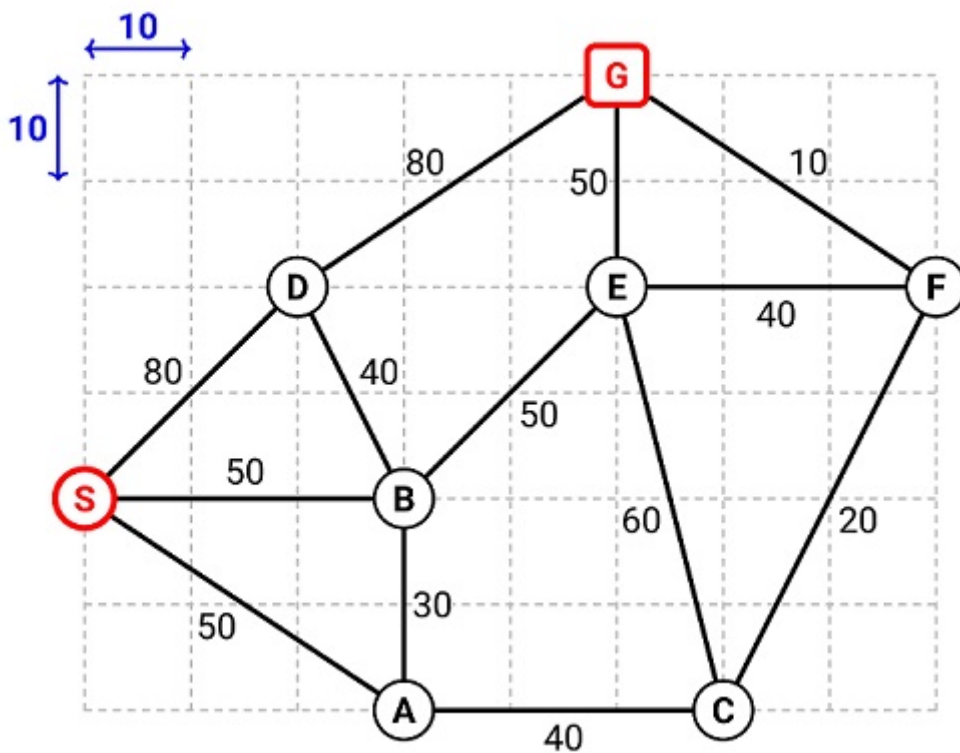
The figure shows a map on a uniform grid where each tile is 10x10 in size.

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 : 49 Question Id : 640653614020 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 Depth First Search algorithm? Enter the path as a comma separated list of node labels.

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEIOUS 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,C,E,G

**Question Number : 50 Question Id : 640653614021 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 EXTRANEIOUS 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,D,G

**Question Number : 51 Question Id : 640653614022 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 EXTRANEIOUS 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,B,E,G

**Question Number :** 52 **Question Id :** 640653614023 **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 EXTRANEIOUS 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,C,F,G

**Question Number :** 53 **Question Id :** 640653614024 **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 :**

6406532049859. ✖ A\* Search Algorithm

6406532049860. ✔ Branch-and-Bound Search Algorithm

6406532049861. ✖ None of these

<b>Sub-Section Number :</b>	3
<b>Sub-Section Id :</b>	64065388803
<b>Question Shuffling Allowed :</b>	No
<b>Is Section Default? :</b>	null

**Question Id : 640653614025 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 : (54 to 57)**

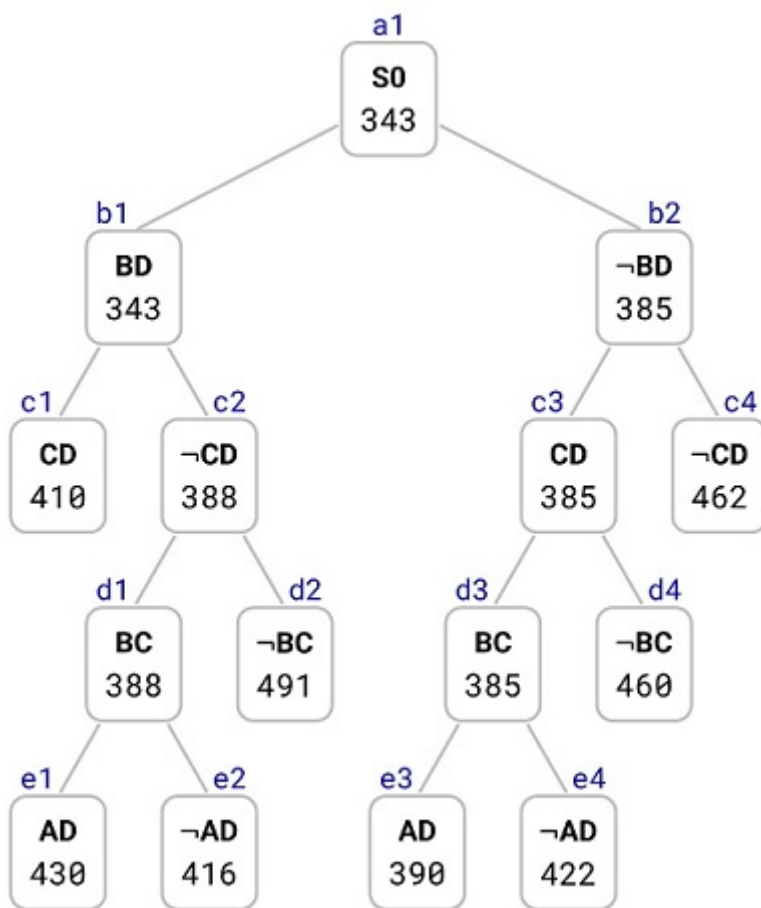
Question Label : Comprehension

### **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, ..., e4). 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 : 54 Question Id : 640653614026 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 EXTRANEIOUS 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,b2,c3,d3

**Question Number : 55 Question Id : 640653614027 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 EXTRANEIOUS 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 :**

e3,390

**Question Number : 56 Question Id : 640653614028 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 EXTRANEIOUS 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 : 57 Question Id : 640653614029 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 EXTRANEIOUS 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,D,C,B,E

A,E,B,C,D

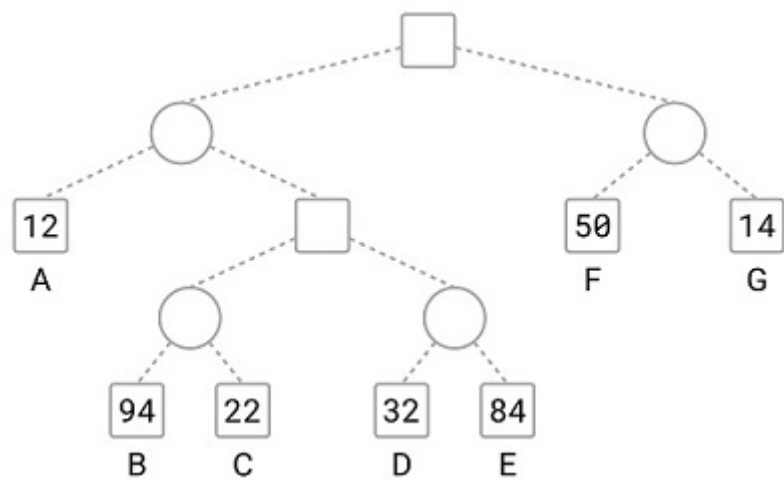
Question Id : 640653614030 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Question Numbers : (58 to 61)

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 G. 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 : 58 Question Id : 640653614031 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 :**

6406532049866. ✖ A,F

6406532049867. ✖ A,B,D,F

6406532049868. ✔ A,D,E

6406532049869. ✖ B,D,F

**Question Number : 59 Question Id : 640653614032 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 EXTRANEIOUS 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 :**

F,G

**Question Number : 60 Question Id : 640653614033 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 EXTRANEIOUS 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 :**

D,E

**Question Number : 61 Question Id : 640653614034 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 SOLVED by SSS\*.

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

NO SPACES, TABS, DOTS, BRACKETS OR EXTRANEIOUS 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 :**

A,F,G

<b>Sub-Section Number :</b>	4
<b>Sub-Section Id :</b>	64065388804
<b>Question Shuffling Allowed :</b>	No
<b>Is Section Default? :</b>	null

**Question Id : 640653614035 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 : (62 to 64)**

Question Label : Comprehension

### **PROBLEM DECOMPOSITION**

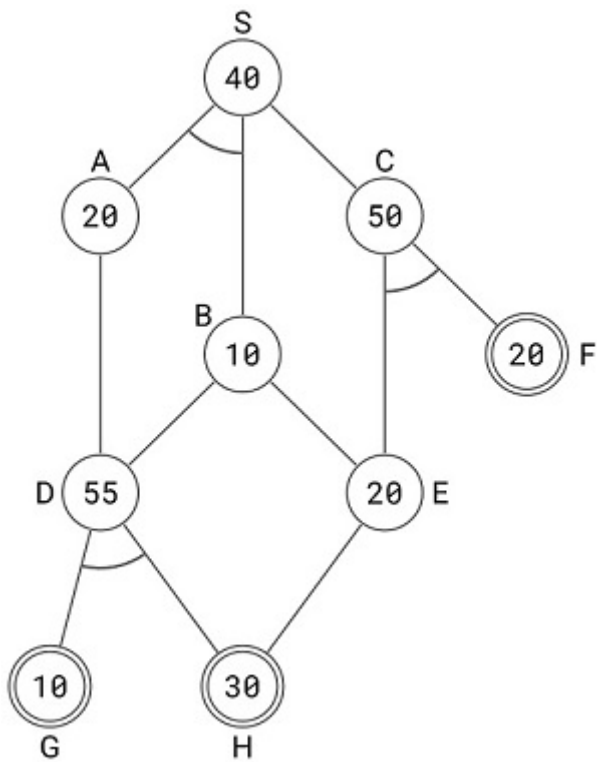
The figure shows an AND-OR graph that depicts how a problem S can be decomposed into one or more smaller problems. Nodes are uniquely identified by labels (S, A, B, ...). The number in each node is the heuristic estimate of the cost of solving that node.

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 10 units.

**Tie-breaker 1:** If several nodes have the same cost then break the tie using node labels.

**Tie-breaker 2:** For AND nodes, expand the unsolved branch with the highest cost.



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

### Sub questions

**Question Number : 62 Question Id : 640653614036 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 EXTRANEIOUS 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,A,C

A,C,E

**Question Number : 63 Question Id : 640653614037 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 EXTRANEIOUS 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 :**

50,60,70

60,70,90

**Question Number : 64 Question Id : 640653614038 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 EXTRANEIOUS CHARACTERS.

**Answer format: 42**

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

90

**Question Id : 640653614039 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**

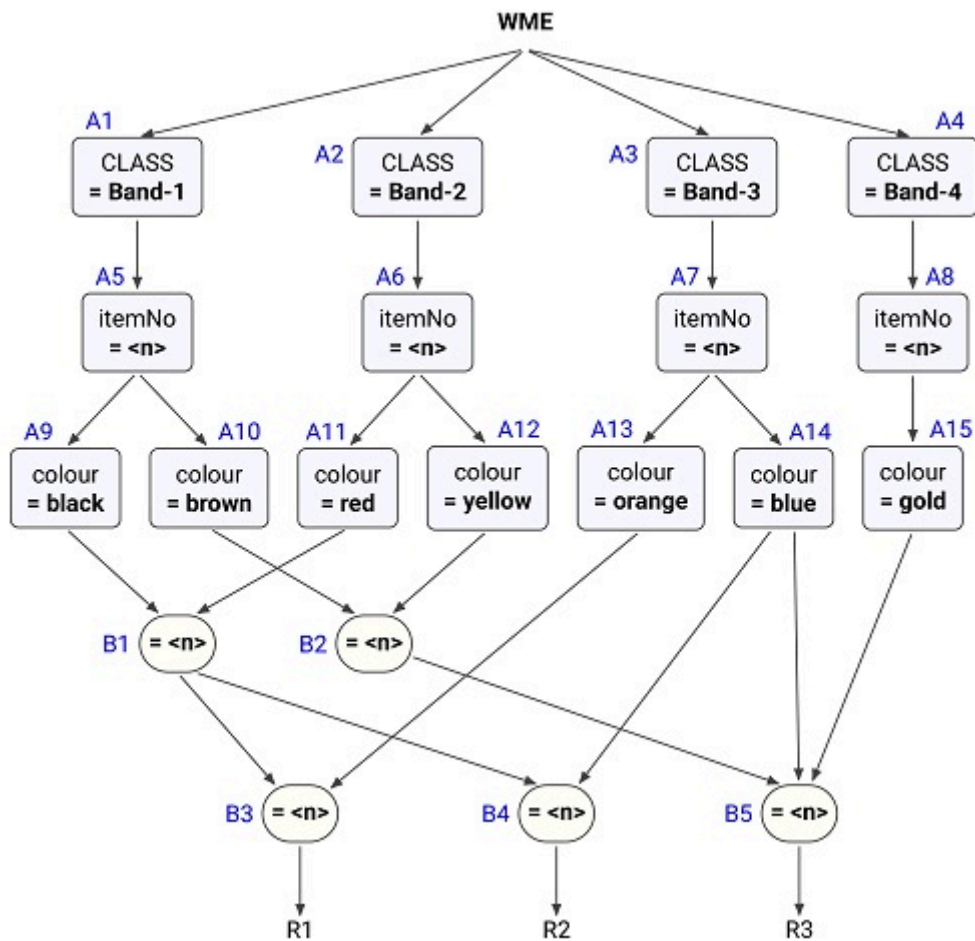
**Question Numbers : (65 to 67)**

**Question Label :** Comprehension

## **RULE BASED EXPERT SYSTEMS**

A small part of the Rete Net for classifying resistors is shown in the figure. The labels A1, A2, ..., A10, A11, ..., B1, ..., B5 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. (Band-1 ^itemNo 2B ^colour black)
102. (Band-1 ^itemNo 3C ^colour brown)
103. (Band-2 ^itemNo 1A ^colour red)
104. (Band-2 ^itemNo 2B ^colour yellow)
105. (Band-2 ^itemNo 3C ^colour yellow)
106. (Band-3 ^itemNo 2B ^colour blue)
107. (Band-3 ^itemNo 3C ^colour blue)
108. (Band-4 ^itemNo 3C ^colour gold)
109. (Band-3 ^itemNo 1A ^colour orange)
110. (Band-1 ^itemNo 1A ^colour black)
  
```

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 : 65 Question Id : 640653614040 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 :

6406532049876. ✓ R1,103,109,110

6406532049877. ✗ R2,101,103,106

6406532049878. ✓ R3,102,105,107,108

6406532049879. ✗ R3,101,104,106,108

Question Number : 66 Question Id : 640653614041 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 **Specificity** as the conflict resolution strategy then identify the rule-data tuple that will be ready to fire.

Options :

6406532049880. ✗ R1,103,109,110

6406532049881. ✗ R2,101,103,106

6406532049882. ✓ R3,102,105,107,108

6406532049883. ✗ R3,101,104,106,108

Question Number : 67 Question Id : 640653614042 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 identify the rule-data tuples that will be ready to fire. If multiple rule-data tuples qualify then choose one.

**Options :**

6406532049884. ✔ R1,103,109,110

6406532049885. ✖ R2,101,103,106

6406532049886. ✖ R3,102,105,107,108

6406532049887. ✖ R3,101,104,106,108

<b>Sub-Section Number :</b>	5
<b>Sub-Section Id :</b>	64065388805
<b>Question Shuffling Allowed :</b>	No
<b>Is Section Default? :</b>	null

**Question Id : 640653614043 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 71)**

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) }

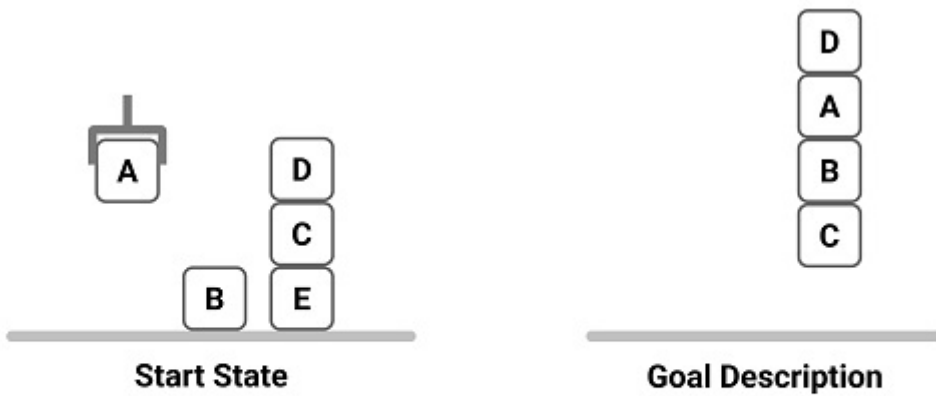
Stack(X,Y): place X directly on top of Y.

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.



{ holding(A), on(D,C), on(C,E),  
onTable(B), onTable(E),  
clear(A), clear(B), clear(D) }

{ on(D,A), on(A,B), on(B,C) }

Based on the above data, answer the given subquestions.

### Sub questions

Question Number : 68 Question Id : 640653614044 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 :

6406532049888. ✓ Putdown(A)

6406532049889. ✓ Stack(A,B)

6406532049890. ✗ Stack(B,C)

6406532049891. ✓ Stack(A,D)

6406532049892. ✗ Stack(D,A)

Question Number : 69 Question Id : 640653614045 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 :**

6406532049893. ✖ Putdown(A)

6406532049894. ✔ Stack(A,B)

6406532049895. ✔ Stack(B,C)

6406532049896. ✖ Stack(A,D)

6406532049897. ✔ Stack(D,A)

**Question Number : 70 Question Id : 640653614046 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 :**

6406532049898. ✔ Stack(A,B), Putdown(A)

6406532049899. ✔ Stack(A,D), Putdown(A)

6406532049900. ✔ Stack(A,B), Stack(A,D)

6406532049901. ✖ Pickup(B), Putdown(A)

6406532049902. ✖ Unstack(D,C), Putdown(A)

**Question Number : 71 Question Id : 640653614047 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 :

6406532049903. ✖ clear(B), holding(A)

6406532049904. ✖ onTable(B), on(A,B)

6406532049905. ✔ onTable(A), on(A,B)

6406532049906. ✔ on(A,D), on(A,B)

Sub-Section Number :	6
Sub-Section Id :	64065388806
Question Shuffling Allowed :	No
Is Section Default? :	null

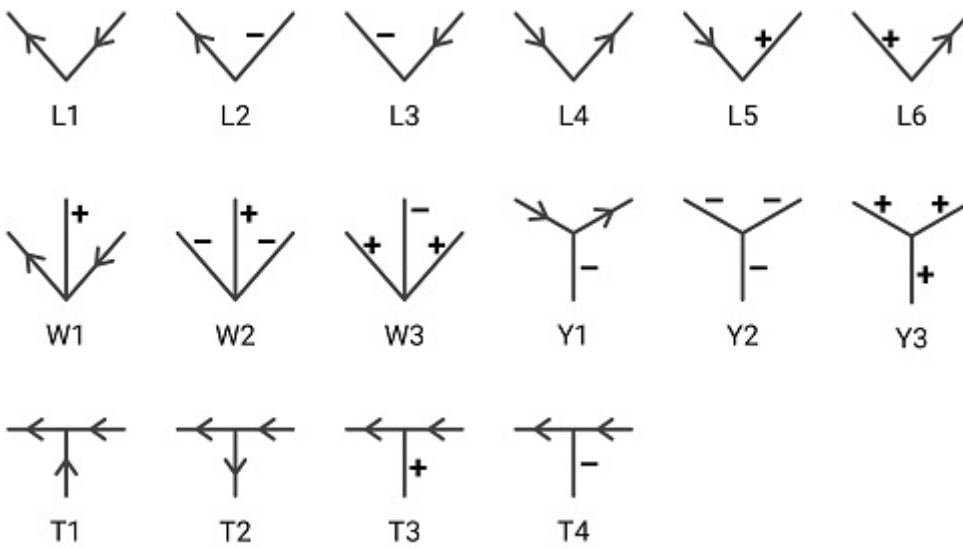
Question Id : 640653614048 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Question Numbers : (72 to 73)

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.

### Sub questions

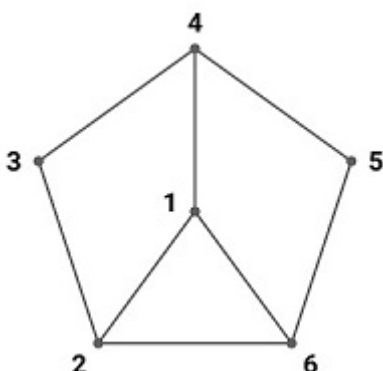
**Question Number : 72 Question Id : 640653614049 Question Type : SA Calculator : None**

**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. Or 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 EXTRANEIOUS CHARACTERS.

**Answer format:** X9,Y9,Z9,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 :**

Y3,W1,L1,W1

Y3,W1,L3,W3

Y3,W2,L2,W1

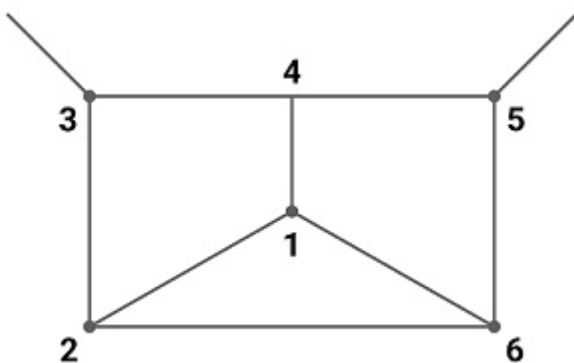
**Question Number :** 73 **Question Id :** 640653614050 **Question Type :** SA **Calculator :** None

**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. Or 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 EXTRANEIOUS CHARACTERS.

**Answer format:** X9,Y9,Z9,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

## Deep Learning

<b>Section Id :</b>	64065341412
<b>Section Number :</b>	4
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	14
<b>Number of Questions to be attempted :</b>	14
<b>Section Marks :</b>	50
<b>Display Number Panel :</b>	Yes
<b>Section Negative Marks :</b>	0
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065388807
<b>Question Shuffling Allowed :</b>	No
<b>Is Section Default? :</b>	null