Number of Questions :	1
Number of Questions to be attempted :	1
Section Marks :	0
Display Number Panel :	Yes
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 :	64065355434
Question Shuffling Allowed :	No

Question Number : 74 Question Id : 640653386999 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

Note : No Quiz1 for Software Engineering

Options :

6406531286969. ✔ YES

6406531286970. ✖ NO

AI

Section Id :	64065323917
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	5
Number of Questions to be attempted :	5

Section Marks :	25
Display Number Panel :	Yes
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 :	64065355435
Question Shuffling Allowed :	No

Question Number : 75 Question Id : 640653387000 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"

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 :

6406531286971. ✔ YES

6406531286972. ✖ NO

Sub-Section Number :	2
Sub-Section Id :	64065355436
Question Shuffling Allowed :	No

Question Id : 640653387001 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (76 to 77)

Question Label : Comprehension

STATE SPACE

In the 8-puzzle, use the combination of tile-number (1 to 8) and the direction (Up, Down,Left, Right) of tile movement to denote a move, for example:

```
6U - move tile 6 up
2D - move tile 2 down
4L - move tile 4 left
8R - move tile 8 right
```

Based on the above data, answer the given subquestions.

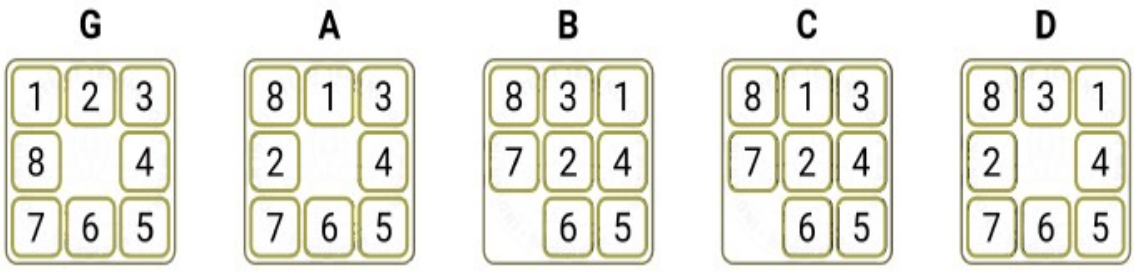
Sub questions

Question Number : 76 Question Id : 640653387002 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

Starting from board G, the sequence of moves 2D,1R,8U,7U will result in _____ .



Options :

6406531286973. ✖ Board G

6406531286974. ✖ Board A

6406531286975. ✖ Board B

6406531286976. ✔ Board C

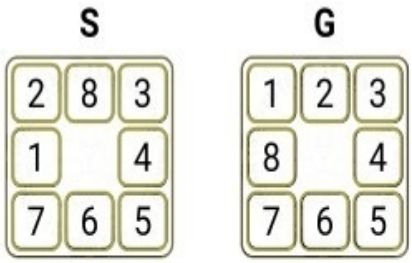
6406531286977. ✖ Board D

Question Number : 77 Question Id : 640653387003 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

Starting from board S, what is the shortest sequence of moves that will result in board G?



Enter a comma separated list of moves.
NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.
Answer Format: 3U,1D,4R

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

8D,2R,1U,8L

Sub-Section Number :	3
Sub-Section Id :	64065355437
Question Shuffling Allowed :	No

Question Id : 640653387004 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (78 to 86)

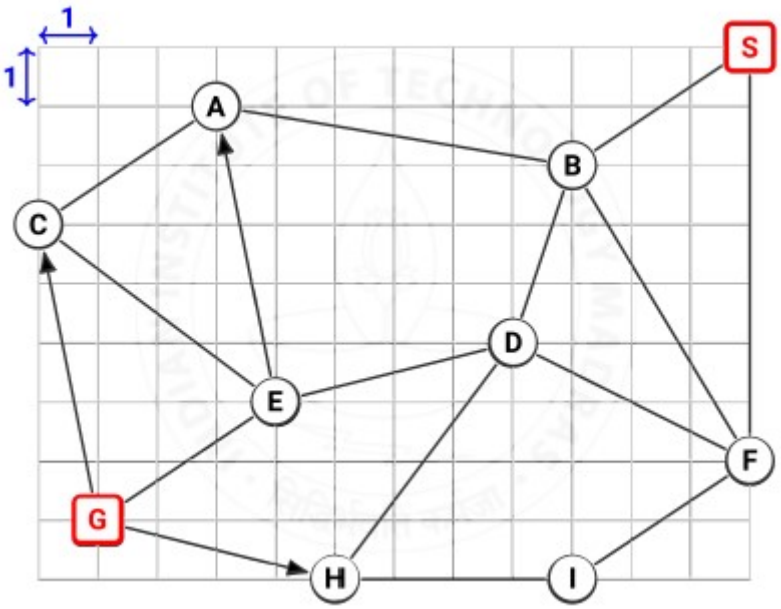
Question Label : Comprehension

SEARCH

The figure shows a map with several locations on a grid where each tile is 1x1 in size. The locations are at grid points and are connected by either two-way edges (shown as undirected edges) or one-way edges (shown with one arrowhead).

Take S as the start node and G as the goal node. The MoveGen function returns neighbours in alphabetical order. The RemoveSeen procedure removes neighbours already present in OPEN/CLOSED lists.

Use Manhattan distance when needed.



When we say a node is inspected/expanded/refined it means: the node is picked up from OPEN, and goal test is called, if goal test fails then MoveGen is called and, depending on the algorithm, the neighbours are selectively placed in OPEN.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 78 Question Id : 640653387005 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 4 nodes inspected by Depth First Search. List the nodes in the order they were inspected. If the algorithm terminates early then list the nodes inspected up until termination.

Enter a comma separated list of node labels.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED 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,A,C

Question Number : 79 Question Id : 640653387006 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 Depth First Search?

Enter the path as a comma separated list of node labels.

Enter NIL if there is no path.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.

Answer Format: S,X,Y,Z,G

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,A,C,E,G

Question Number : 80 Question Id : 640653387007 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 4 nodes inspected by Breadth First Search. List the nodes in the order they were inspected. If the algorithm terminates early then list the nodes inspected up until termination.

Enter a comma separated list of node labels.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED 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,F,A

Question Number : 81 Question Id : 640653387008 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

What is the path found by Breadth First Search?

Enter the path as a comma separated list of node labels.

Enter NIL if there is no path.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.

Answer Format: S,X,Y,Z,G

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,D,E,G

Question Number : 82 Question Id : 640653387009 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 4 nodes inspected by Best First Search. List the nodes in the order they were inspected. If the algorithm terminates early then list the nodes inspected up until termination.

Enter a comma separated list of node labels.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED 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,F,I,H

Question Number : 83 Question Id : 640653387010 Question Type : SA Calculator : None

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

Correct Marks : 2

Question Label : Short Answer Question

What is the path found by Best First Search?

Enter the path as a comma separated list of node labels.

Enter NIL if there is no path.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.

Answer Format: S,X,Y,Z,G

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,F,D,E,G

Question Number : 84 Question Id : 640653387011 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 4 nodes inspected by Hill Climbing. List the nodes in the order they were inspected. If the algorithm terminates early then list the nodes inspected up until termination.

Enter a comma separated list of node labels.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED 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,F,I,H

Question Number : 85 Question Id : 640653387012 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 Hill Climbing?

Enter the path as a comma separated list of node labels.

Enter NIL if there is no path.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.

Answer Format: S,X,Y,Z,G

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

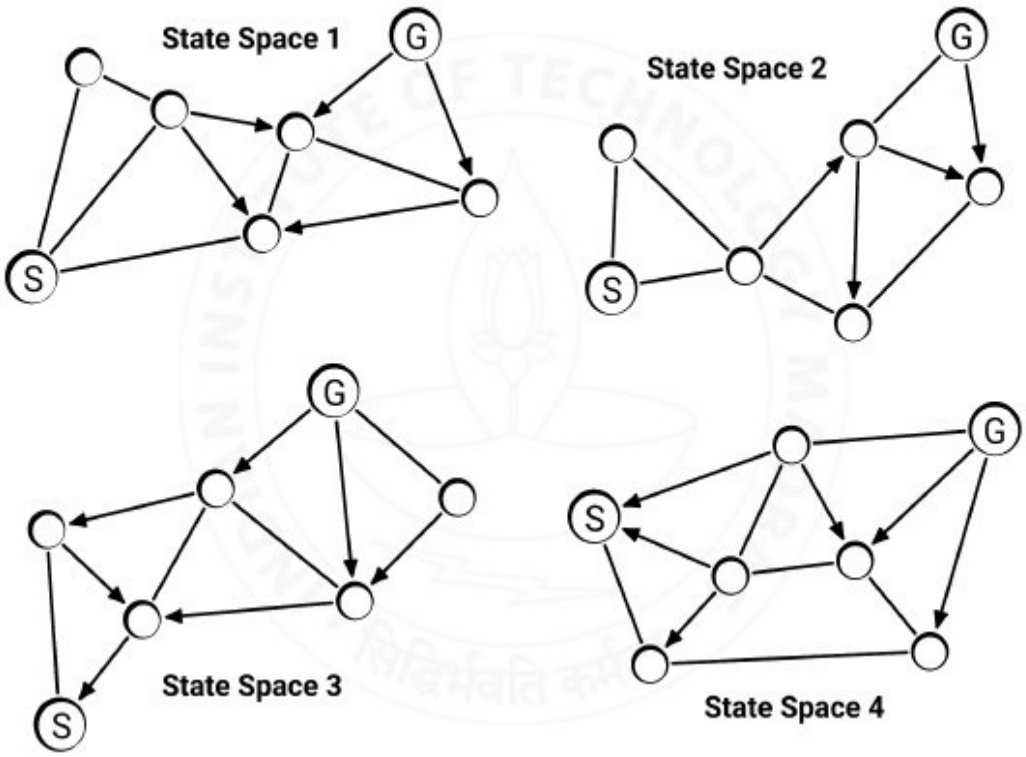
Nil

Question Number : 86 Question Id : 640653387013 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Select Question

For which of these state spaces does Depth First Search find a path from S to G?



Options :

6406531286987. ✖ State Space 1

6406531286988. ✔ State Space 2

6406531286989. ✖ State Space 3

6406531286990. ✔ State Space 4

Sub-Section Number : 4

Sub-Section Id : 64065355438

Question Shuffling Allowed : No

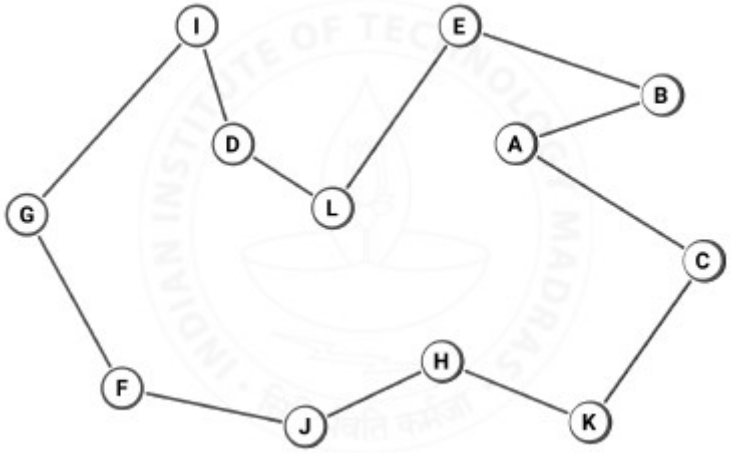
Question Id : 640653387014 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (87 to 90)

Question Label : Comprehension

GENETIC ALGORITTHM

A tour of 12 cities is shown below. The edges are bi-directional. Use A,B,C,...,L as the reference (index) sequence to prepare tour representations.



Based on the above data, answer the given subquestions.

Sub questions

Question Number : 87 Question Id : 640653387015 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Select Question

Select the valid path representations of the tour.

Options :

6406531286991. ✔ I,D,L,E,B,A,C,K,H,J,F,G

6406531286992. ✔ A,B,E,L,D,I,G,F,J,H,K,C

6406531286993. ✖ A,C,K,L,G,J,F,H,I,D,E,B

6406531286994. ✖ A,C,K,F,B,H,G,I,D,L,E,J

Question Number : 88 Question Id : 640653387016 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Select Question

Select the valid adjacency representations of the tour.

Options :

6406531286995. ✔ C,A,K,L,B,G,I,J,D,F,H,E

6406531286996. ✔ B,E,A,I,L,J,F,K,G,H,C,D

6406531286997. ✖ I,D,L,E,B,A,C,K,H,J,F,G

6406531286998. ✖ A,B,E,L,D,I,G,F,J,H,K,C

Question Number : 89 Question Id : 640653387017 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Convert the path representation A,C,K,H,J,F,G,I,D,L,E,B to ordinal representation.

Options :

6406531286999. ✔ 1,2,9,6,7,4,4,4,2,3,2,1

6406531287000. ✖ 9,4,10,4,2,1,1,5,3,3,1,1

6406531287001. ✖ 1,2,9,6,4,4,4,7,2,3,2,1

6406531287002. ✖ 3,10,8,3,2,2,5,1,3,3,2,1

Question Number : 90 Question Id : 640653387018 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Select Question

Path representations of two tours are given below. Generate offspring using Cycle Crossover.

P1: I,D,L,E,B,A,C,K,H,J,F,G

P2: A,L,I,K,J,D,E,H,C,F,G,B

Select the child tours.

Options :

6406531287003. ✔ I,D,L,K,B,A,E,H,C,J,F,G

6406531287004. ✔ A,L,I,E,J,D,C,K,H,F,G,B

6406531287005. ✖ I,K,L,D,J,E,C,A,F,B,H,G

6406531287006. ✖ C,D,I,E,B,A,J,K,H,L,G,F

Sub-Section Number : 5

Sub-Section Id : 64065355439

Question Shuffling Allowed : No

Question Id : 640653387019 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (91 to 95)

Question Label : Comprehension

TSP

The distance matrix for 7 cities and the corresponding edge costs (in sorted order) are provided below. Use this information to construct TSP tours.

	A	B	C	D	E	F	G
A	-	36	52	66	30	108	115
B	36	-	40	101	50	143	151
C	52	40	-	113	79	139	158
D	66	101	113	-	60	63	51
E	30	50	79	60	-	116	110
F	108	143	139	63	116	-	46
G	115	151	158	51	110	46	-

AE	AB	BC	FG	BE	DG	AC
30	36	40	46	50	51	52

DE	DF	AD	CE	BD	AF	EG
60	63	66	79	101	108	110

CD	AG	EF	CF	BF	BG	CG
113	115	116	139	143	151	158

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 91 Question Id : 640653387020 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

Use E as the starting city, construct a tour using Nearest Neighbour Heuristic. The tour is _____ . Enter the path representation of the tour, starting from E and tracing the cities selected by the Nearest Neighbour Heuristic.

Enter a comma separated list of city names.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.

Answer format: E,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 :

E,A,B,C,D,G,F

Question Number : 92 Question Id : 640653387021 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 cost of the tour generated by Nearest Neighbour Heuristic?

Enter a number.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.

Answer format: 17

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

432

Question Number : 93 Question Id : 640653387022 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

Construct a tour using Greedy Heuristic, enter the path representation of the tour starting from city A.

Enter a comma separated list of city names.
NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.
Answer format: A,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 :

A,B,C,F,G,D,E

A,E,D,G,F,C,B

Question Number : 94 Question Id : 640653387023 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 cost of the tour generated by Greedy Heuristic?

Enter a number.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.

Answer format: 17

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

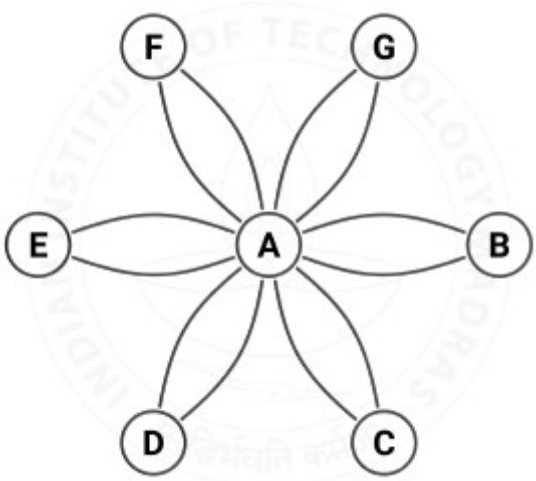
402

Question Number : 95 Question Id : 640653387024 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

Savings heuristic: the initial set of 6 tours with A as the fulcrum node is shown in the figure. Identify the first two edges that will be removed and the first new edge that will be added, and compute the savings. Enter the first edge added and the savings in the text box.



An edge from X to Y is named as XY.

Enter an edge name XY and a number as a comma separated list.

NO SPACES, TABS, DOTS, BRACKETS, PARENTHESIS OR UNWANTED CHARACTERS.

Answer format: XY,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 :

FG,117

GF,117

Deep Learning

Section Id :	64065323918
Section Number :	7
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	7
Number of Questions to be attempted :	7
Section Marks :	50
Display Number Panel :	Yes
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 :	64065355440
Question Shuffling Allowed :	No