

What is the cyclomatic complexity of the given CFG? Do not write the number in words, if your answer is 6, enter 6 but **not** six .

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

Question Number : 82 **Question Id :** 640653470836 **Question Type :** SA **Calculator :** None

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

Correct Marks : 7

Question Label : Short Answer Question

How many test requirements are there for the *edge-pair coverage*? Do not write the number in words, if your answer is 6, enter 6 but **not** six .

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

14

AI

Section Id :	64065330376
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	7
Number of Questions to be attempted :	7
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 :	64065367953
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 83 Question Id : 640653470841 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 :

6406531564540. ✓ YES

6406531564541. ✗ NO

Sub-Section Number :	2
Sub-Section Id :	64065367954

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 84 Question Id : 640653470842 Question Type : MSQ Is Question

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

Correct Marks : 1 Selectable Option : 0

Question Label : Multiple Select Question

Given a state space with only irreversible actions/moves, _____ .

Options :

6406531564542. ✖ Depth First Search can find a solution only if the first move chosen is part of the final solution

6406531564543. ✔ Depth First Search can find a solution even if the first move chosen is not part of the final solution

6406531564544. ✖ Breadth First Search can find a solution only if the first move chosen is part of the final solution

6406531564545. ✔ Breadth First Search can find a solution even if the first move chosen is not part of the final solution

Sub-Section Number :

3

Sub-Section Id :

64065367955

Question Shuffling Allowed :

Yes

Is Section Default? :

null

Question Number : 85 Question Id : 640653470843 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

In the Simulated Annealing algorithm, _____ .

Options :

6406531564546. ✖ a population of agents collaborates in a stochastic manner to solve an

optimisation problem

6406531564547. ✖ a single agent generates one random neighbour and moves to it only if it is better than the current node

6406531564548. ✔ a single agent generates one random neighbour and may move to it whether it is better than the current node or not

6406531564549. ✖ a population of agents solves an optimization problem individually before combining the best solutions

Sub-Section Number :	4
Sub-Section Id :	64065367956
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 86 Question Id : 640653470844 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Selectable Option : 0

Question Label : Multiple Select Question

A boat, man, lion, goat and a basket of cabbage are on the left bank of a river. The boat can carry a man and one other item only (either a lion, goat or cabbage). When the man is not around, the goat will eat the cabbage and the lion will eat the goat.

Model this problem as a state space search problem. A state is represented as LEFT/RIGHT, for example,

1. NONE/BMLGC: nothing on the left bank and all are on the right bank.
2. LC/BMG: lion, cabbage are on the left bank, and a boat, man, goat are on the right bank.
3. G/BML: goat is on the left bank, and a boat, man, lion are on the right bank.
4. L/BM: lion is on the left bank, and a boat and man are on the right bank.

The first two are safe states where nothing gets eaten, the last two are unsafe states where something gets eaten. When LGC is left alone, assume that the goat eats the cabbage, after that the lion eats the goat, so we will have less states to handle.

A move (or action) in this state space stands for one trip across the river, where the man can go alone in the boat or take one item along with him.

Starting from BMLGC/NONE, which of the following states (both safe and unsafe states) are reachable in exactly 3 moves, nothing more, nothing less. Avoid repeating states like a -> b -> a.

Options :

6406531564550. ✓ C/BMLG

6406531564551. ✓ L/BMGC

6406531564552. ✗ BMLG/C

6406531564553. ✗ BMGC/L

6406531564554. ✓ NONE/BML

6406531564555. ✓ NONE/BMLC

Sub-Section Number :	5
Sub-Section Id :	64065367957
Question Shuffling Allowed :	No
Is Section Default? :	null

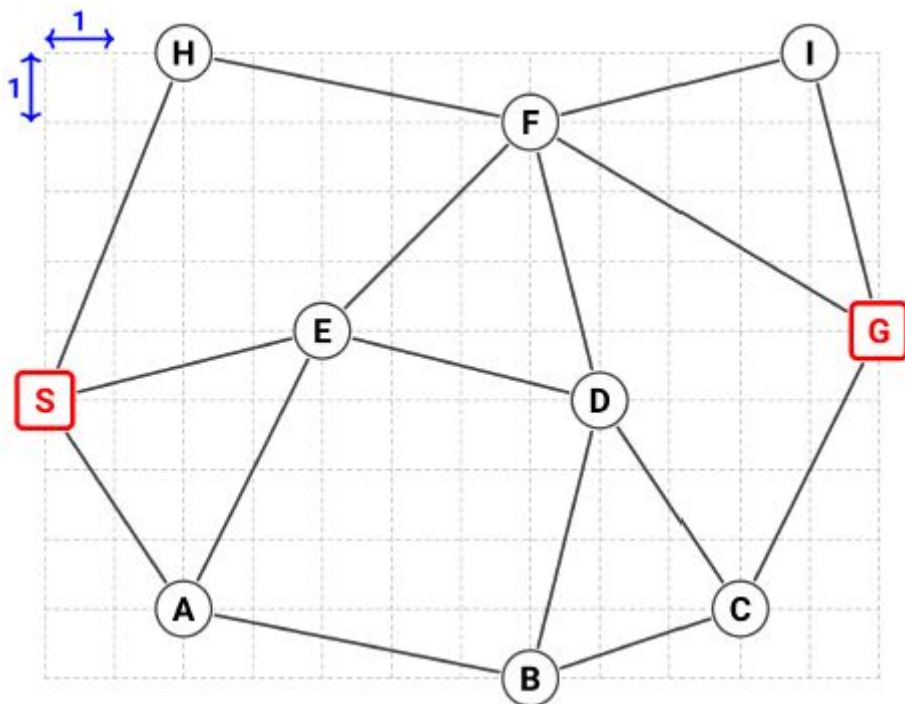
Question Id : 640653470845 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Question Numbers : (87 to 94)

Question Label : Comprehension

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 : 87 Question Id : 640653470846 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 (including the start node) 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,A,B,C

Question Number : 88 **Question Id :** 640653470847 **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,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,A,B,C,G

Question Number : 89 **Question Id :** 640653470848 **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,A,E,H

Question Number : 90 Question Id : 640653470849 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,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,E,F,G

Question Number : 91 Question Id : 640653470850 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,E,D,C

Question Number : 92 Question Id : 640653470851 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,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,E,D,C,G

Question Number : 93 Question Id : 640653470852 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,E,D

Question Number : 94 Question Id : 640653470853 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,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 :

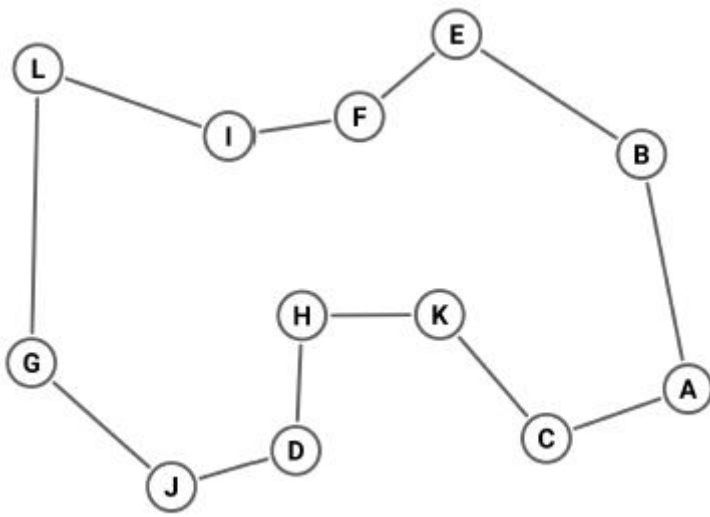
Nil

Sub-Section Number :	6
Sub-Section Id :	64065367958
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653470854 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 : (95 to 98)

Question Label : Comprehension

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 : 95 Question Id : 640653470855 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Selectable Option : 0

Question Label : Multiple Select Question

Select the valid path representations of the tour.

Options :

6406531564564. ✖ L,I,F,E,B,A,C,K,H,D,J,G,L

6406531564565. ✖ H,D,J,G,L,I,F,E,B,A,C,K,H

6406531564566. ✔ L,I,F,E,B,A,C,K,H,D,J,G

6406531564567. ✔ H,D,J,G,L,I,F,E,B,A,C,K

Question Number : 96 Question Id : 640653470856 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Selectable Option : 0

Question Label : Multiple Select Question

Select the valid adjacency representations of the tour.

Options :

6406531564568. ✓ C,A,K,J,B,E,L,D,F,G,H,I

6406531564569. ✓ B,E,A,H,F,I,J,K,L,D,C,G

6406531564570. ✗ C,A,K,J,H,E,B,D,F,G,L,I

6406531564571. ✗ B,G,A,H,F,I,J,E,L,D,C,K

Question Number : 97 Question Id : 640653470857 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 I,H,B,L,J,F,D,A,E,G,K,C to ordinal representation.

Options :

6406531564572. ✓ 9,8,2,9,7,5,3,1,2,2,2,1

6406531564573. ✗ 12,9,6,5,2,1,1,5,3,1,2,1

6406531564574. ✗ 9,8,2,9,4,5,6,2,4,3,2,1

6406531564575. ✗ 9,8,2,9,4,5,6,3,1,1,2,1

Question Number : 98 Question Id : 640653470858 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

Two tours in path representation are given below. Generate offspring using Partially Mapped Crossover (PMX), use the locations from 5 to 8 as the mapping segment. Enter one of the child tours in the textbox.

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

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

Enter a comma separated list of cities.

DO NOT ENTER SPACES, TABS, DOTS, BRACKETS OR EXTRANEIOUS CHARACTERS.

Response Type : Alphanumeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Set

Answers Case Sensitive : No

Text Areas : PlainText

Possible Answers :

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

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

Sub-Section Number :	7
Sub-Section Id :	64065367959
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653470859 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 : (99 to 103)

Question Label : Comprehension

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	-	57	82	53	32	27	47
B	57	-	81	69	96	45	94
C	82	81	-	32	71	42	17
D	53	69	32	-	16	17	55
E	32	96	71	16	-	60	63
F	27	45	42	17	60	-	75
G	47	94	17	55	63	75	-

AD	FG	BE	BC	EG	CF	BG
16	17	17	27	32	32	42

BF	CG	EF	DF	CE	AF	AC
45	47	53	55	57	60	63

BD	CE	FG	BC	AC	BG	BE
69	71	75	81	82	94	96

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 99 Question Id : 640653470860 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 B as the starting city, construct a tour using Nearest Neighbour Heuristic. The tour is _____. Use alphabetical order to break ties. Enter the path representation of the tour, starting from B 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: B,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,F,D,E,A,G,C

Question Number : 100 Question Id : 640653470861 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 :

255

Question Number : 101 Question Id : 640653470862 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, use the sorted edge list for breaking ties, the edges occurring early in the list wins. 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,G,C,B,E,D,F

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

Question Number : 102 **Question Id :** 640653470863 **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 :

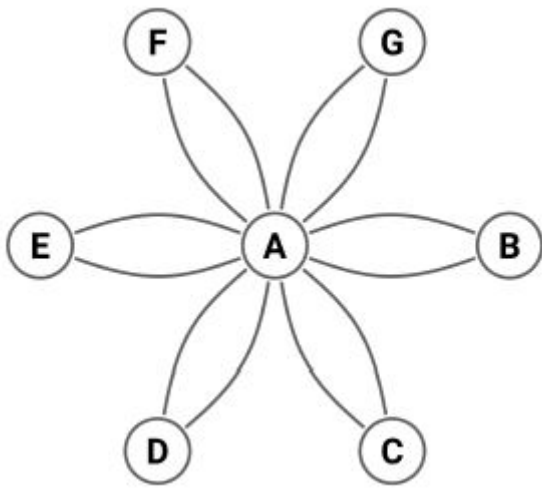
Question Number : 103 Question Id : 640653470864 Question Type : SA Calculator : None

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 :

CG,112

Deep Learning

Section Id :	64065330377
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	9
Number of Questions to be attempted :	9
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 :	64065367960
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 104 Question Id : 640653470865 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 : DEEP LEARNING"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.