6406532733495. ✖ Zero conditional

6406532733496. ✖ First conditional

6406532733497. ✖ Second conditional

6406532733498. ✔ Third conditional

Sem1 Maths1

Section Id :	64065356689
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	15
Number of Questions to be attempted :	15
Section Marks :	50
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 :	640653118893
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 143 Question Id : 640653815996 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 "FOUNDATION LEVEL : SEMESTER I: MATHEMATICS FOR DATA SCIENCE I (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 :

6406532733499. ✔ YES

6406532733500. ✖ NO

Question Number : 144 Question Id : 640653815997 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

Instructions:

- There are some questions which have functions with discrete valued domains (such as day, month, year etc). For simplicity, we treat them as continuous functions.
- For NAT type question, enter only one right answer even if you get multiple answers for that particular question.

Options :

6406532733501. ✔ Instructions has been mentioned above.

6406532733502. ✖ This Instructions is just for a reference & not for an evaluation.

Sub-Section Number :	2
Sub-Section Id :	640653118894
Question Shuffling Allowed :	Yes

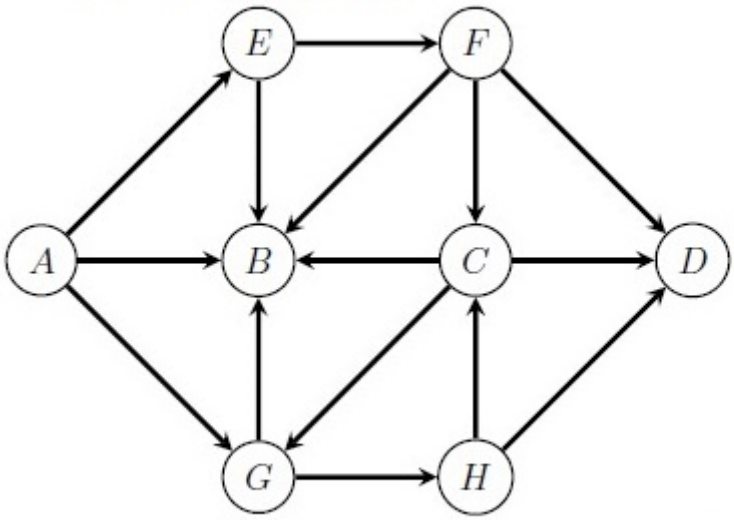
Is Section Default? : null

Question Number : 145 Question Id : 640653815998 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

Consider the given graph



Which of the following is the longest path of the graph?

Options :

6406532733503. ✖ *AEFBGHD*

6406532733504. ✔ *AEFCGHD*

6406532733505. ✖ *GAEFCHD*

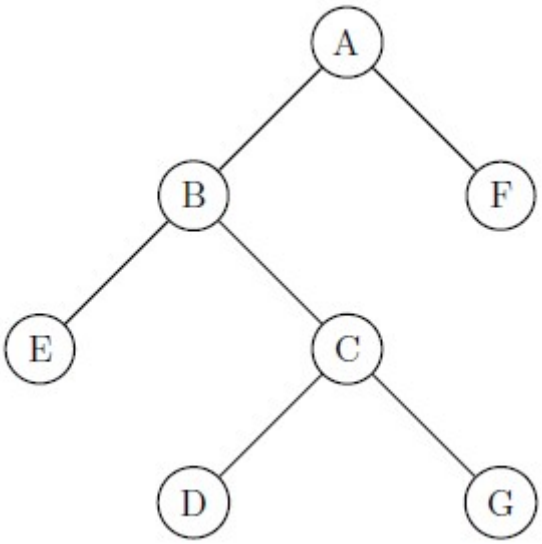
6406532733506. ✖ *CBAEFCD*

Question Number : 146 Question Id : 640653816004 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

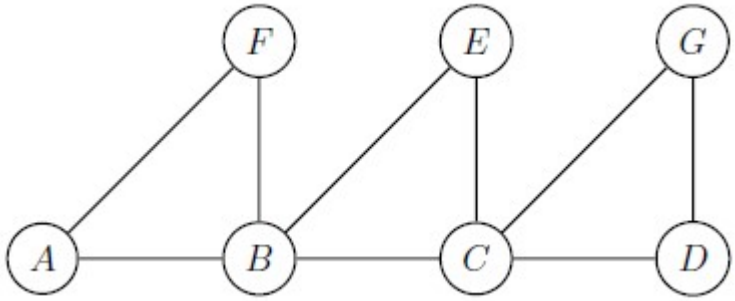
Question Label : Multiple Choice Question

The DFS (Depth First Search) tree of a graph starting with vertex *A* is shown below. Choose the option which might be the original graph.

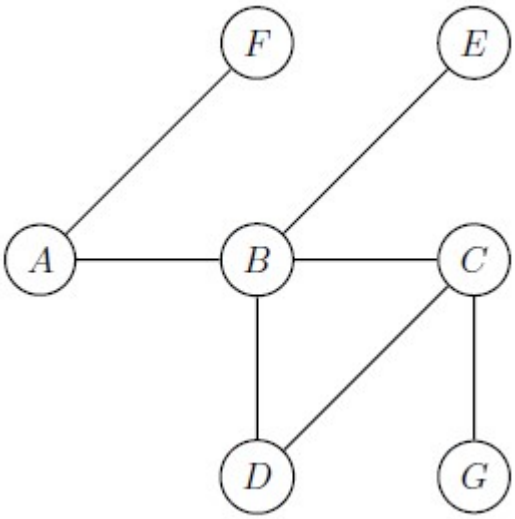


Options :

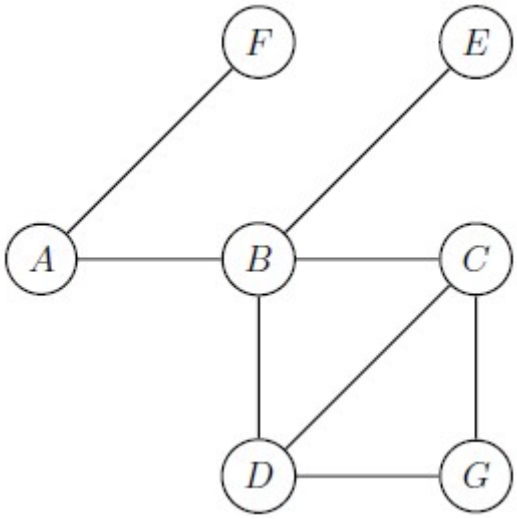
6406532733514. ✖

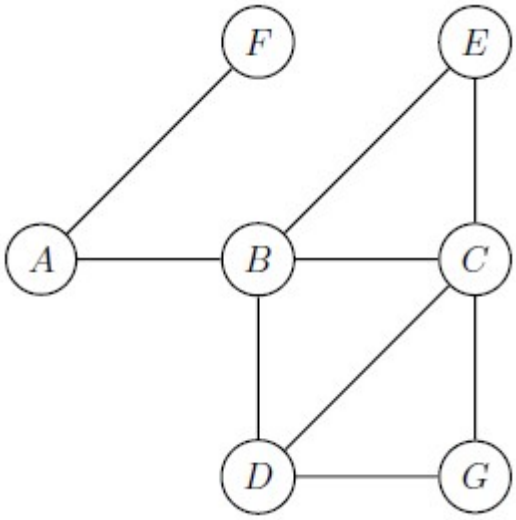


6406532733515. ✔



6406532733516. ✖





6406532733517.

Sub-Section Number :	3
Sub-Section Id :	640653118895
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 147 Question Id : 640653816023 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Choose the set of correct options considering the function given below:

$$f(y) = \begin{cases} \frac{sin(y)}{y} & \text{if } y \neq 0 \\ 1 & \text{if } y = 0 \end{cases}$$

Options :

6406532733544. ✖ The derivative of $f(y)$ at $y = 0$(if it exists) is 1.

6406532733545. ✔ $f(y)$ is continuous at $y = 0$.

6406532733546. ✔ The derivative of $f(y)$ at $y = 0$(if it exists) is 0.

6406532733547. ✖ $f(y)$ is not differentiable at $y = 0$.

Sub-Section Number : 4

Sub-Section Id : 640653118896

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 148 Question Id : 640653816005 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Suppose $A = \{a, b, c, d\}$ and $B = \{p, q, r, s\}$ are two sets. Consider the following relations on $A \times B$.

- $R_1 = \{(a, p), (c, r), (d, q)\}$
- $R_2 = \{(a, s), (b, s), (c, p), (d, r)\}$
- $R_3 = \{(a, p), (b, r), (b, s), (d, q)\}$
- $R_4 = \{(a, r), (b, p), (c, q), (d, s)\}$

Which of the following statements are correct?

Options :

6406532733518. ✖ R_2,R_3, and R_4 are functions.

6406532733519. ✔ R_2 and R_4 are functions.

6406532733520. ✖ R_2 is an injective function.

6406532733521. ✔ R_4 is a bijective function.

Question Number : 149 Question Id : 640653816019 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following statements is/are true about the function $f(x) = log(log(x))$?

Options :

6406532733538. ✔ f is one-one on its domain.

6406532733539. ✔ f has an inverse on its domain.

6406532733540. ✖ f is a decreasing function.

6406532733541. ✖ The domain of f is $(0, \infty)$

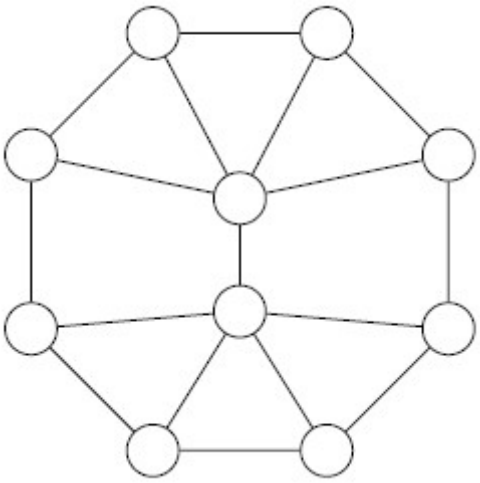
Sub-Section Number :	5
Sub-Section Id :	640653118897
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 150 Question Id : 640653815999 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

What is the minimum number of colors required to color the graph given below?



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

3

Sub-Section Number :	6
Sub-Section Id :	640653118898
Question Shuffling Allowed :	Yes
Is Section Default? :	null

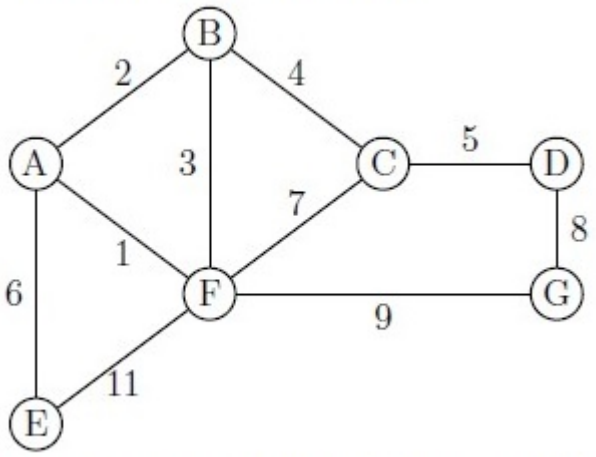
Question Number : 151 Question Id : 640653816000 Question Type : SA Calculator : None

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

Correct Marks : 4

Question Label : Short Answer Question

Consider the following graph:



Calculate the cost of minimum spanning tree for the above graph.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

26

Sub-Section Number :	7
Sub-Section Id :	640653118899
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653816006 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 : (152 to 153)

Question Label : Comprehension

A person is climbing stairs and he stops at a point *P* on the stairs after reaching two-third of the total distance of stairs. The stairs forms an isosceles triangle with the floor and wall. Assume the origin (0, 0) at the intersection of the wall and floor and the stairs is to the right of the wall.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 152 Question Id : 640653816007 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

Find the angle between the stairs and the wall(in degrees).

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

45

Question Number : 153 Question Id : 640653816008 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

If the distance between the bottom of the stairs and the wall is 3m, the x-coordinate of P is

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Id : 640653816020 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 : (154 to 155)

Question Label : Comprehension

Find $\lim_{n\to\infty} a_n$ for the given sequences.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 154 Question Id : 640653816021 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

$\{a_n\}$ such that $a_n = \dfrac{n^2+5n}{6n^2+1}$

Note: Enter your answer correctly to two decimal places.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

0.16 to 0.17

Question Number : 155 Question Id : 640653816022 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

$\{a_n\}$ such that $a_n = \dfrac{1}{10} + \dfrac{(-1)^n}{n^3}$

Note: Enter your answer correctly to two decimal places.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

0.08 to 0.12

Sub-Section Number :	8
Sub-Section Id :	640653118900
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653816009 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 : (156 to 159)

Question Label : Comprehension

Consider the following function ;

$$f(x) = \begin{cases} log(-x-2) & x < -2 \\ \frac{1}{x-2} & -2 \leq x < 0 \\ \frac{1}{x-3} & 0 \leq x \leq 2 \\ -e^{(x-2)} & x > 2 \end{cases}$$

Are the given statements about the function $f(x)$ true or false?

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 156 Question Id : 640653816010 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

The limit of $f(x)$ at $x = 0$ does not exists.

Options :

6406532733524. ✔ TRUE

6406532733525. ✖ FALSE

Question Number : 157 Question Id : 640653816011 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

The limit of $f(x)$ at $x = 2$ exists and it's equal to $f(2) = -1$. i.e. $f(x)$ is continuous at $x = 2$.

Options :

6406532733526. ✔ TRUE

6406532733527. ✖ FALSE

Question Number : 158 Question Id : 640653816012 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

The limit of $f(x)$ at $x = -2$ exists and it's equal to $f(-2) = -1$. i.e. $f(x)$ is continuous at $x = -2$.

Options :

6406532733528. ✖ TRUE

6406532733529. ✔ FALSE

Question Number : 159 Question Id : 640653816013 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

$f(x)$ is continuous on the entire real line.

Options :

6406532733530. ✖ TRUE

6406532733531. ✔ FALSE

Question Id : 640653816014 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 : (160 to 163)

Question Label : Comprehension

Consider a polynomial function $f(x) = \frac{x^5}{5} - \frac{5x^3}{3} + 4x$ which is defined in $\mathbb{R}$.

Answer the given sub-questions.

Sub questions

Question Number : 160 Question Id : 640653816015 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

How many critical points does $f(x)$ have?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

Question Number : 161 Question Id : 640653816016 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

Is the statement True or False: $f(x)$ is decreasing in the set $(-2,-1]\cup(-1,2)$ and $x=1$ is saddle point.

Options :

6406532733533. ✖ TRUE

6406532733534. ✔ FALSE

Question Number : 162 Question Id : 640653816017 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

Is the statement True or False: $f(x)$ is increasing in the set $(-\infty,-2)\cup(2,\infty)$ and $x=1$ is the point of local maxima.

Options :

6406532733535. ✔ TRUE

6406532733536. ✖ FALSE

Question Number : 163 Question Id : 640653816018 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

How many points of local minima does $f(x)$ have?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

Question Id : 640653816024 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 : (164 to 165)

Question Label : Comprehension

Suppose f is a real valued function defined on $\mathbb{R}$. Let $f(x+y) = f(x)f(y)$ for all $x, y \in \mathbb{R}$ and $f(1) = 7$ and $f'(0) = 2$.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 164 Question Id : 640653816025 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 value of $f(0)$?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 165 Question Id : 640653816026 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 value of $f'(1)$?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

14

Sub-Section Number :	9
Sub-Section Id :	640653118901
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653816001 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 : (166 to 167)

Question Label : Comprehension

Consider the following adjacency matrix of an undirected graph

$$\begin{array}{c} \\ A \\ B \\ C \\ D \\ E \end{array} \begin{array}{c} \begin{array}{ccccc} A & B & C & D & E \end{array} \\ \begin{bmatrix} 0 & 1 & 1 & 0 & 1 \\ 1 & 0 & 0 & 1 & 1 \\ 1 & 0 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 \end{bmatrix} \end{array}$$

which represents graph G which has 5 vertices A, B, C, D and E.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 166 Question Id : 640653816002 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following options is/are true?

Options :

6406532733509. ✔ The number of vertices is 5.

6406532733510. ✔ The number of edges is 6.

6406532733511. ✖ Each vertex has degree 2.

6406532733512. ✖ There is an edge between every pair of vertices.

Question Number : 167 Question Id : 640653816003 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

What is the size of the minimum vertex cover of graph G?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

3

Sem1 Statistics1

Section Id :	64065356690
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	15
Number of Questions to be attempted :	15
Section Marks :	50
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 :	640653118902
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 168 Question Id : 640653816027 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 "FOUNDATION LEVEL : SEMESTER I: STATISTICS FOR DATA SCIENCE I (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