Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Group I

Group Number :	1
Group Id :	64065314249
Group Maximum Duration :	0
Group Minimum Duration :	90
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	1145
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No
Revisit allowed for group Instructions? :	Yes
Maximum Instruction Time :	0
Minimum Instruction Time :	0
Group Time In :	Minutes
Navigate To Group Summary From Last Question? :	No
Disable Submit Button During Assessment? :	No
Section Selection Time? :	0
No of Optional sections to be attempted :	0

Sem1 Maths1

Section Id :	64065341319
Section Number :	1
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 :	64065388133
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 1 Question Id : 640653611350 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 1: MATHEMATICS FOR DATA SCIENCE 1 (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)
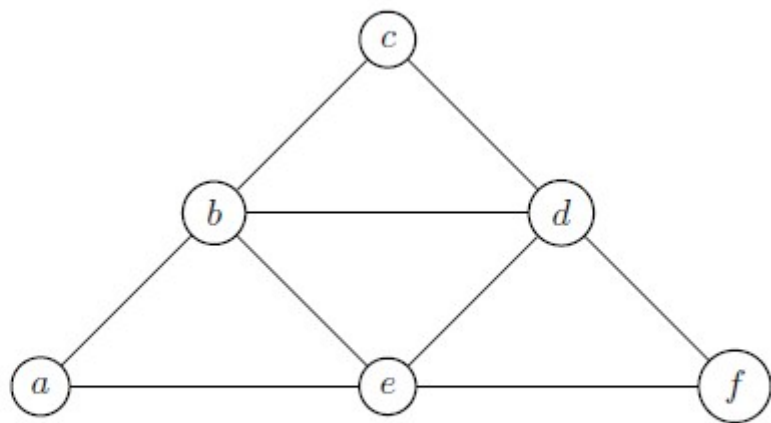
Options :

6406532041672. ✔ YES

6406532041673. ✖ NO

Question Number : 2 Question Id : 640653611351 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 that 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.

- Notations:

    - $\mathbb{R}$= Set of real numbers
    - $\mathbb{Q}$= Set of rational numbers
    - $\mathbb{Z}$= Set of integers
    - $\mathbb{N}$= Set of natural numbers

- The set of natural numbers includes 0.

Options :

6406532041674. ✔ Useful Data has been mentioned above.

6406532041675. ✖ This data attachment is just for a reference & not for an evaluation.

Sub-Section Number :	2
Sub-Section Id :	64065388134
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 3 Question Id : 640653611352 Question Type : MSQ Is Question

Correct Marks : 3 Max. Selectable Options : 0
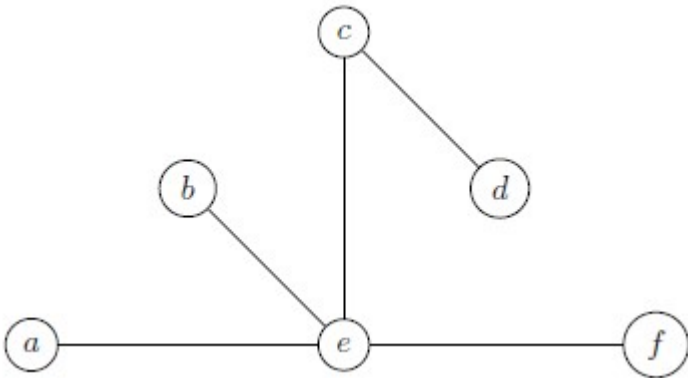
Question Label : Multiple Select Question
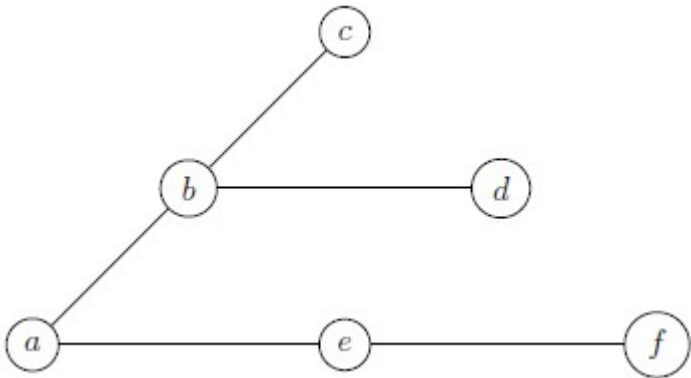
Consider the following graph G.

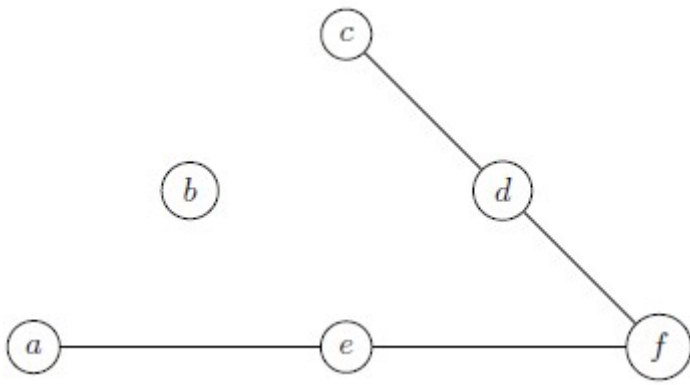Which of the following is(are) **not spanning tree** of G?
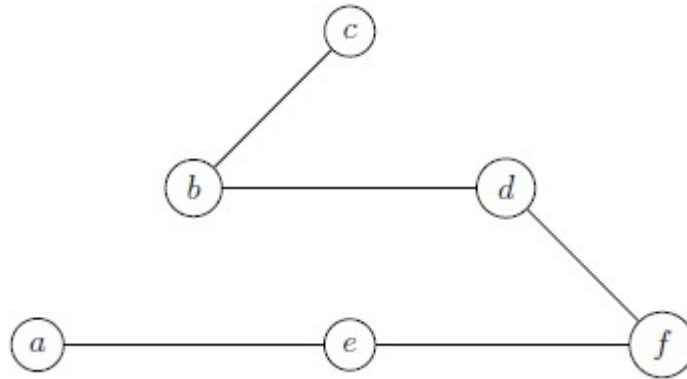
Options :

6406532041676. ✔

6406532041677. ✖

6406532041678. ✔

6406532041679. ✖

Sub-Section Number :	3
Sub-Section Id :	64065388135
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 4 Question Id : 640653611353 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

An undirected graph G has 12 edges. Find the number of vertices, if the degree of each vertex in G is 2.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

12

Question Number : 5 Question Id : 640653611379 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

The melting point of ice and boiling point of water in Celsius scale is 0° and 100° Centigrade respectively, and in Fahrenheit scale is 32° and 212° Fahrenheit respectively.If the change in Fahrenheit scale varies linearly with respect to Celsius scale, then at what temperature (in ^{o} Centigrade) both the scale read the same?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-40

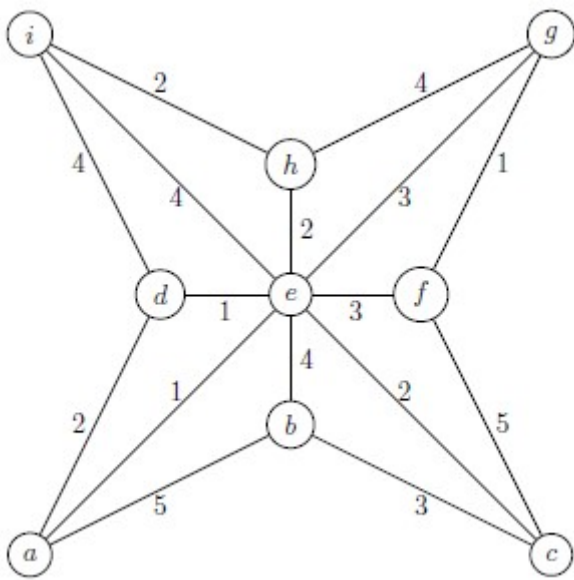|	
Sub-Section Number :	4
Sub-Section Id :	64065388136
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 6 Question Id : 640653611354 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

An undirected weighted graph G is given in below Figure.

Which of the following option is true?

Options :

6406532041681. ✔ The cost of the minimum spanning tree is 15.

6406532041682. ✖ The cost of the minimum spanning tree is 14.

6406532041683. ✖ The cost of the minimum spanning tree is 13.

6406532041684. ✖ The cost of the minimum spanning tree is 16.

Sub-Section Number :	5
Sub-Section Id :	64065388137
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 7 Question Id : 640653611358 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

The point on the curve $x^2 = 2y$ which is nearest to the point $(0, 5)$ is

Options :

6406532041690. ✔ $(2\sqrt{2}, 4)$

6406532041691. ✖ $(2\sqrt{2}, 0)$

6406532041692. ✖ $(0, 0)$

6406532041693. ✖ $(2, 2)$

Question Number : 8 Question Id : 640653611372 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the following functions:

- $f(x) = \log |x - 1|$
- $g(x) = \log x^3$

Which of the following option is true?

Options :

6406532041719. ✖ $f(x)$ is invertible.

6406532041720. ✔ $g(x)$ is invertible.

6406532041721. ✖ Domain of $(f \circ g)(x)$ is the interval $(0, \infty)$.

6406532041722. ✖ Domain of $(g \circ f)(x)$ is the interval $(2, \infty)$.

Sub-Section Number :   6

Sub-Section Id :   64065388138

Question Shuffling Allowed :   No

Question Id : 640653611359 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 : (9 to 10)

Question Label : Comprehension

Consider the following piecewise function:

$$f(x) = \begin{cases} 5^x, & x < 0, \\ 1, & x = 0, \\ x^{1/5} + 2, & x > 0. \end{cases}$$

Use this information to answer the given sub-questions.
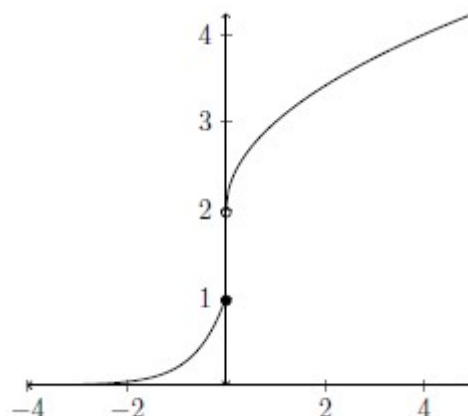
Sub questions

Question Number : 9 Question Id : 640653611360 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

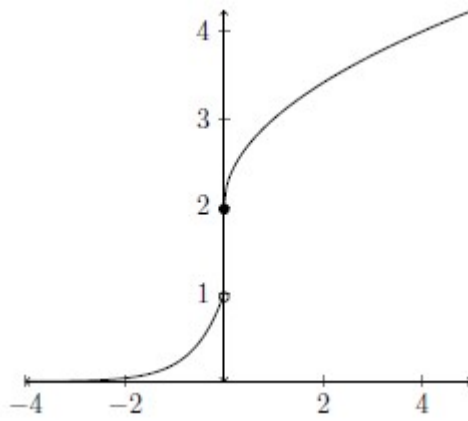Question Label : Multiple Choice Question

The solid points denote the value of the function at the points, and the function does not take the values denoted by the hollow points. Which of the following figures may represent the graph of the function?
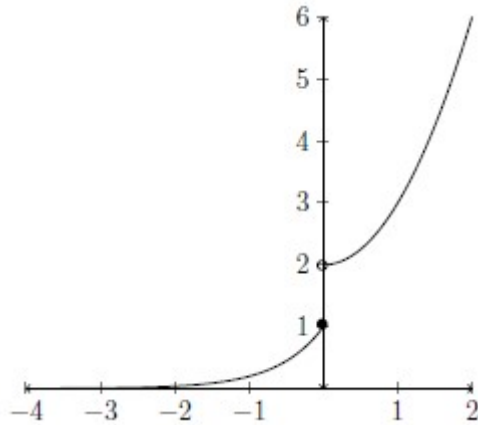
Options :

6406532041694. ✔
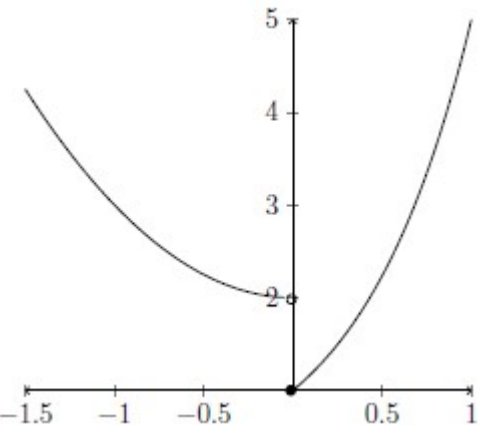
6406532041695. ✖

6406532041696. ✖

6406532041697. ✖

Question Number : 10 Question Id : 640653611361 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 :

6406532041698. ✖ $f(x)$ is a bounded function.

6406532041699. ✖ $f(x)$ is differentiable at $x = 0$.

6406532041700. ✖ $f(x)$ is continuous at $x = 0$.

6406532041701. ✔ $\lim\limits_{x \to -\infty} f(x) = 0$

6406532041702. ✔ $\lim\limits_{x \to 0^-} f(x) = 1$

Sub-Section Number :	7
Sub-Section Id :	64065388139
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653611355 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 : (11 to 12)

Question Label : Comprehension

Consider the adjacency matrix of an undirected graph G:

$$\begin{bmatrix} 0 & 1 & 0 & 1 & 0 \\ 1 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 & 1 \\ 1 & 0 & 1 & 0 & 1 \\ 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

Use this information to answer the given sub-questions.

Sub questions

Question Number : 11 Question Id : 640653611356 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 :

6406532041685. ✱ The Number of edges is 8.

6406532041686. ✔ The Number of vertices is 5.

6406532041687. ✔ The Number of edges is 7.

6406532041688. ✱ Each vertex has degree 3.

Question Number : 12 Question Id : 640653611357 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

Sub-Section Number :	8
Sub-Section Id :	64065388140
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Numbers : (13 to 16)

Question Label : Comprehension

Define a function f in the interval $[-2, 10]$ as follows:

$$f(x) = \begin{cases} 2x^2 & \text{if } -2 \leq x < 2 \\ (x-2)^3 & \text{if } 2 \leq x < 4 \\ -\frac{2}{3}(x-4) + 4 & \text{if } 4 \leq x \leq 10 \end{cases}$$

Below represents the graph of the function f. The solid points denote the value of the function at the points, and the values denoted by the hollow points are not taken by the functions.
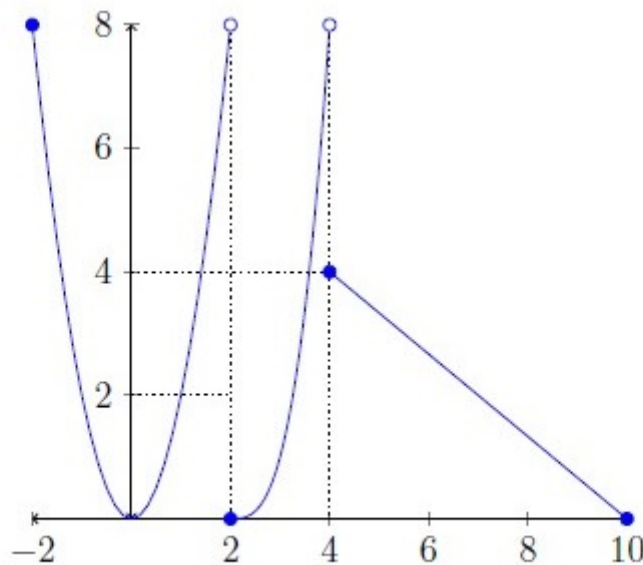
Use this information to answer the given sub-questions.

Sub questions

Question Number : 13 Question Id : 640653611363 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

Consider the integration:
$$\int_{-2}^{2} f(x)\,dx = \frac{32}{3}.$$

Options :

6406532041703. ✔ True

6406532041704. ✖ False

Question Number : 14 Question Id : 640653611364 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

Consider the integration:
$$\int_{2}^{4} f(x)\,dx = 5.$$

Options :

6406532041705. ✖ True

6406532041706. ✔ False

Question Number : 15 Question Id : 640653611365 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

Consider the derivative:
$f'(x) = 3(x^2 - 4x + 4)$ in the interval $(2, 4)$.

Options :

6406532041707. ✔ True

6406532041708. ✖ False

Question Number : 16 Question Id : 640653611366 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

Consider the derivative:

$f'(x) = \frac{2}{3}$ in the interval $(4, 10)$.

Options :

6406532041709. ✴ True

6406532041710. ✔ False

Question Id : 640653611367 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 : (17 to 20)

Question Label : Comprehension

Define a function f in the interval $[-2, 10]$ as follows:

$$f(x) = \begin{cases} 2x^2 & \text{if } -2 \leq x < 2 \\ (x-2)^3 & \text{if } 2 \leq x < 4 \\ -\frac{2}{3}(x-4) + 4 & \text{if } 4 \leq x \leq 10 \end{cases}$$

Below represents the graph of the function f. The solid points denote the value of the function at the points, and the values denoted by the hollow points are not taken by the functions.
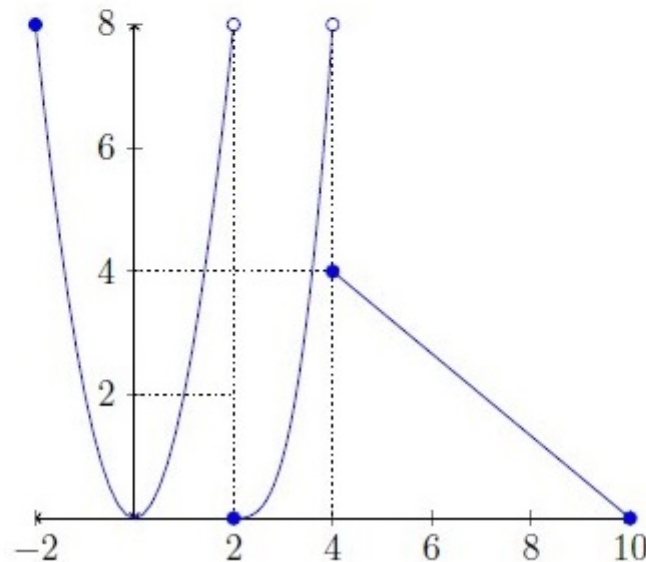
Use this information to answer the given sub-questions.

Sub questions

Question Number : 17 Question Id : 640653611368 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 number of critical points in (−2, 10) is 7.

Options :

6406532041711. ✖ True

6406532041712. ✔ False

Question Number : 18 Question Id : 640653611369 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 [−2, 10], the global maximum is attained at $x = -2$.

Options :

6406532041713. ✔ True

6406532041714. ✖ False

Question Number : 19 Question Id : 640653611370 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 [−2, 10], the global minimum is attained at $x = 4$.

Options :

6406532041715. ✖ True

6406532041716. ✔ False

Question Number : 20 Question Id : 640653611371 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

There are two points where f is not differentiable in (−2, 10).

Options :

6406532041717. ✔ True

6406532041718. ✖ False

Question Id : 640653611373 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 : (21 to 22)

Question Label : Comprehension

Consider the three polynomials

- $p(x) = 5x^5 + a_1 x^4 + b_1 x^2 + c_1.$
- $q(x) = -x^4 + a_2 x^2 + b_2 x + c_2.$
- $s(x) = -x^7 + a_3 x^5 + b_3 x^3 + c_3 x^2 + d_3 x + e_3.$

Use this information to answer the given subquestions.

Sub questions

Question Number : 21 Question Id : 640653611374 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following options is/are true?

Options :

6406532041723. � If $r_1(x)$ is the obtained remainder when $q(x)$ divides $p(x)$, then the maximum possible degree of $r_1(x)$ is 2.

6406532041724. � If $r_2(x)$ is the obtained remainder when $p(x)$ divides $s(x)$, then the maximum possible degree of $r_2(x)$ is 2.

6406532041725. ✔ If $t_1(x)$ is the obtained quotient when $q(x)$ divides $p(x)$, then the possible degree of $t_1(x)$ is 1.

6406532041726. ✔ If $t_2(x)$ is the obtained quotient when $p(x)$ divides $s(x)$, then the possible degree of $t_2(x)$ is 2.

Question Number : 22 Question Id : 640653611375 Question Type : MSQ Is Question

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

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following options is/are true?

Options :

6406532041727. ✔ The maximum possible number of turning points in $s(x)$ is 6.

6406532041728. ✖ The maximum possible number of turning points in $p(x)$ is 5.

6406532041729. ✖ $q(x) \to \infty$ as $x \to \infty$.

6406532041730. ✔ $s(x) \to -\infty$ as $x \to \infty$.

Question Id : 640653611376 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 : (23 to 24)

Question Label : Comprehension

Each student in a class of 40 plays at least one indoor game, chess, carrom, and scrabble.18 play chess, 20 play scrabble and 27 play carrom. 7 play chess and scrabble, 12 play scrabble and carrom and 4 play chess, carrom and scrabble.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 23 Question Id : 640653611377 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 number of students who play both chess and carrom.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 24 Question Id : 640653611378 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 number of students who play chess, carrom but not scrabble.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

6

Question Id : 640653611380 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 : (25 to 26)

Question Label : Comprehension

An arrow is shot horizontally off from a tower that is 80m high and follows a parabolic path. If the height(in m) from the ground with respect to time(in sec) follows the formula $h(t) = 80 - 5t^2$, then answer the given subquestions:

Sub questions

Question Number : 25 Question Id : 640653611381 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

How much time(in sec) the arrow will take to reach the ground?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

Question Number : 26 Question Id : 640653611382 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following options is/are true?

Options :

6406532041735. ✔ The slope of the tangent line at $t = 2$ is -20.

6406532041736. ✖ The linear approximation $(L_h(t))$ of the function $h(t)$ at $t = 2$ is $L_h(t) = 100 + 20t$.

6406532041737. ✔ The equation of the tangent line of the function $h(t)$ at $t = 3$ is $y = 125 - 30t$.

6406532041738. ✖ The linear approximation $(L_h(t))$ of the function $h(t)$ at $t = 2$ is $L_h(t) = 125 - 30t$.

Sem2 Statistics2

Section Id :	64065341320
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	12
Number of Questions to be attempted :	12
Section Marks :	40
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 :	64065388141
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 27 Question Id : 640653611383 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0