Shraddha is a brilliant student.

Options :

6406532470155. ✖ Brilliant

6406532470156. ✖ Is

6406532470157. ✔ Student

6406532470158. ✔ Shraddha

Sem1 Maths1

Section Id :	64065351396
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	12
Number of Questions to be attempted :	12
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 :	640653107924
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 58 Question Id : 640653738176 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 :

6406532470256. ✔ YES

6406532470257. ✖ NO

Question Number : 59 Question Id : 640653738177 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 :

6406532470258. ✔ Useful Data has been mentioned above.

6406532470259. ✖ This data attachment is just for a reference & not for an evaluation.

Sub-Section Number : 2

Sub-Section Id : 640653107925

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 60 Question Id : 640653738178 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the following relations defined on the set of integers:

- $R_1 = \{(x, y)\colon x, y \in \mathbb{Z} \text{ and } \mid x - y \mid \leq 3\}$.
- $R_2 = \{(x, y)\colon x, y \in \mathbb{Z} \text{ and } 3 \text{ divides } x - y\}$.

Choose the correct option(s):

Options :

6406532470260. ✔ R_1 is reflexive and symmetric.

6406532470261. ✖ R_2 is symmetric but not transitive.

6406532470262. ✖ R_1 is an equivalence relation but R_2 is not an equivalence relation.

6406532470263. ✔ R_2 is an equivalence relation but R_1 is not an equivalence relation.

Question Number : 61 Question Id : 640653738179 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Max. Selectable Options : 0

Question Label : Multiple Select Question

Let $f(x) = \mid x^2 - 4 \mid -1$. Which of the following option(s) are true for f?

Options :

6406532470264. ✔ f is defined for all $x \in \mathbb{R}$.

6406532470265. ✖ f is one-one

6406532470266. ✔ The range of f is $[-1, \infty)$.

6406532470267. ✖ The minimum value of f is 0.

Question Number : 62 Question Id : 640653738194 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider two polynomials $p(x) = -x^5 + 5x^4 - 7x - 2$ and $q(x) = -x^5 + 5x^4 - x^2 - 2$.
Which of the following options is/are true?

Options :

6406532470294. ✖ $q(x) \longrightarrow \infty$ as $x \longrightarrow \infty$.

6406532470295. ✔ $p(x) \longrightarrow -\infty$ as $x \longrightarrow \infty$.

6406532470296. ✔ $p(x)$ has at most 4 turning points.

6406532470297. ✔ The quotient obtained while dividing $q(x)$ by $p(x)$ is a constant.

Sub-Section Number :	3
Sub-Section Id :	640653107926
Question Shuffling Allowed :	No

Is Section Default? : null

Question Id : 640653738180 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 : (63 to 64)

Question Label : Comprehension

Consider two triangles ABC and PAB with coordinates $A(4,3)$, $B(2,2)$, $C(8,3)$ and $P(t,t^2)$. The area of triangle ABC is 4 times the area of the triangle PAB.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 63 Question Id : 640653738181 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 area of the triangle *ABC*?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

Question Number : 64 Question Id : 640653738182 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5 Max. Selectable Options : 0

Question Label : Multiple Select Question

Choose all the possible options for *P*.

Options :

6406532470269. ✖ (0, 0)

6406532470270. ✖ (2, 4)

6406532470271. ✖ (−2, 4)

6406532470272. ✔ (−1, 1)

6406532470273. ✔ (1, 1)

Sub-Section Number :	4
Sub-Section Id :	640653107927
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653738183 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 66)

Question Label : Comprehension

Suppose that L_1 and L_2 are lines in the plane, with the x-intercepts of L_1 and L_2 are 2 and -1, respectively, and that the respective y-intercepts are -3 and 2.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 65 Question Id : 640653738184 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

Choose the point where L_1 and L_2 intersect.

Options :

6406532470274. ✖ (10, 18)

6406532470275. ✖ (5, 8)

6406532470276. ✔ (−10,−18)

6406532470277. ✖ (6, 6)

Question Number : 66 Question Id : 640653738185 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

If θ is the angle between L_1 and L_2, then tan θ is equal to

Options :

6406532470278. ✔ $\frac{1}{8}$

6406532470279. ✖ $\frac{1}{6}$

6406532470280. ✖ $\frac{3}{8}$

6406532470281. ✖ $\frac{1}{4}$

Sub-Section Number :	5
Sub-Section Id :	640653107928
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653738186 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 : (67 to 68)

Question Label : Comprehension

In a grocery store, 60 customers made a purchase on a specific day. 28 people bought bread, 37 people bought milk and 30 people bought fruits. All the customers bought at least one of the three items. 16 of them bought bread and fruits, 17 of them bought bread and milk and 9 of them bought all the three items.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 67 Question Id : 640653738187 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 customers who bought milk and fruits.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

11

Question Number : 68 Question Id : 640653738188 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 customers who bought milk and fruits but not bread.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

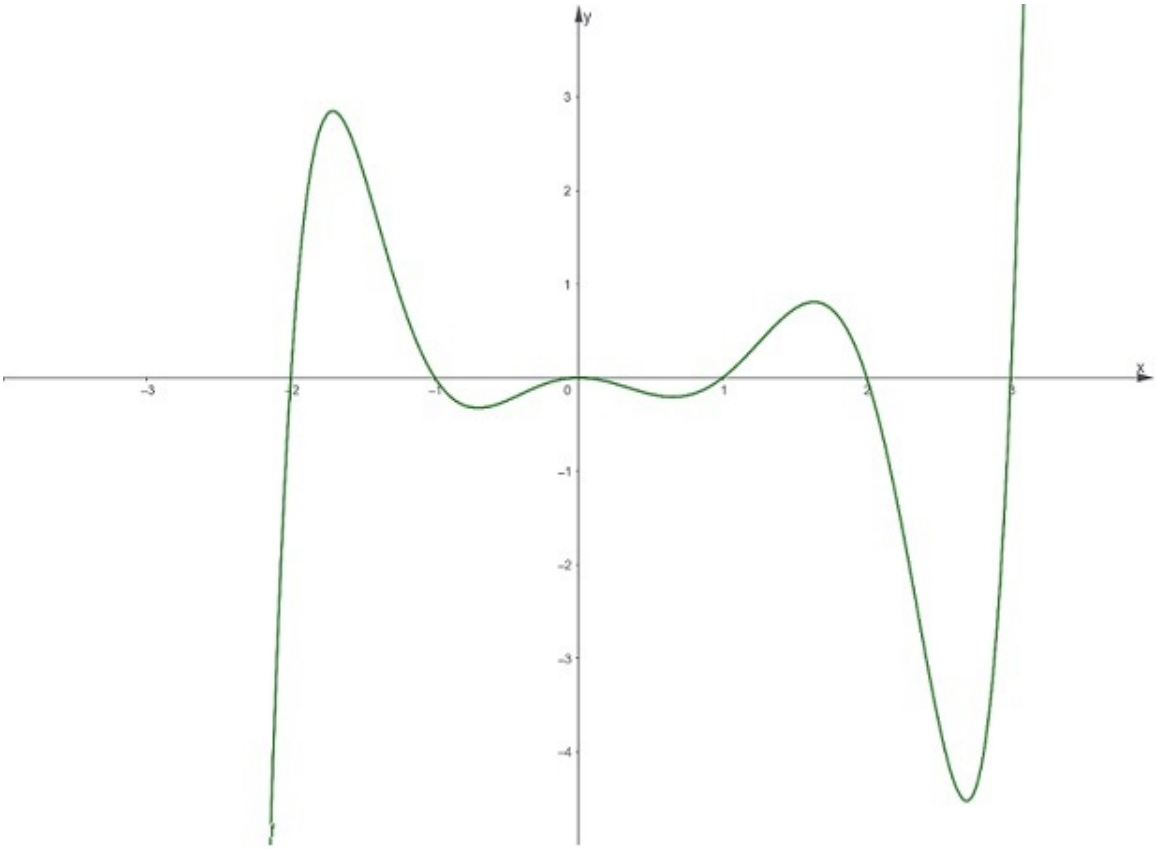
Sub-Section Number :	6
Sub-Section Id :	640653107929
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 69 Question Id : 640653738189 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

Consider the following polynomial *p(x)* whose graph is given below:-



Which of the following options is/are correct.

Options :

6406532470284. ✖ Multiplicity of -1 and 1 must be same.

6406532470285. ✔ *p(x)* is increasing in the interval (3,∞).

6406532470286. ✔ The total number of local minima is 3.

6406532470287. ✖ The number of turning points is 5.

Question Number : 70 Question Id : 640653738190 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 options is/are true?

Options :

6406532470288. ✖ The point at which the slope of the equation $x^2 + 2x - 5$ equals 10 is $(4,17)$

6406532470289. ✖ $x = 2$ is the axis of symmetry of the quadratic function $f(x) = x^2 + 4x + 5$

6406532470290. ✔ If two different quadratic equations have same discriminant then the roots of both equations can be same.

6406532470291. ✔ The point at which the slope of the equation $x^2 + 2x - 5$ equals 10 is (4,19)

Sub-Section Number :	7
Sub-Section Id :	640653107930
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653738191 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 : (71 to 72)

Question Label : Comprehension

If the slope of parabola $y = Ax^2 + Bx + C$, where $A, B, C \in \mathbb{R}$ at points $(3, 2)$ and $(2, 3)$ are 16 and 12 respectively.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 71 Question Id : 640653738192 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2.5

Question Label : Short Answer Question

Calculate the value of *A*

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

Question Number : 72 Question Id : 640653738193 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2.5

Question Label : Short Answer Question

Calculate the value of *B*

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

Sub-Section Number :	8
Sub-Section Id :	640653107931
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 73 Question Id : 640653738195 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

Ram and Shyam want to solve a quadratic equation. Ram made a mistake in writing down the

constant term and ended up in getting roots as 3 and 4. Shyam made a mistake in writing down the coefficient of *x* and got the roots as 2 and 3. Consider the leading coefficient to be 1 in all cases. The correct roots of the quadratic equation are:

Options :

6406532470298. ✖ 1 and 5

6406532470299. ✖ 2 and 6

6406532470300. ✔ 1 and 6

6406532470301. ✖ 2 and 5

Sem1 Statistics1

Section Id :	64065351397
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	13
Number of Questions to be attempted :	13
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 :	640653107932
Question Shuffling Allowed :	No
Is Section Default? :	null