Correct Marks : 1

Question Label : Multiple Choice Question

Which among the following is the correct way to read the following phone number: 8637681134?

Options :

6406532237999. ✖ 8637/6811/34

6406532238000. ✖ 863/768/113/4

6406532238001. ✖ 86/37/68/11/34

6406532238002. ✔ All of these

Sub-Section Number :	5
Sub-Section Id :	64065394981
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 57 Question Id : 640653667839 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Max. Selectable Options : 0

Question Label : Multiple Select Question

'*Rinku reads quite clearly*'. In this sentence which of the following is an adverb?

Options :

6406532237926. ✖ Reads

6406532237927. ✔ Quite

6406532237928. ✔ Clearly

6406532237929. ✖ Rinku

Sem1 Maths1

Section Id :	64065344873
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 :	64065394982
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 58 Question Id : 640653667860 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 :

6406532238003. ✔ YES

6406532238004. ✖ NO

Question Number : 59 Question Id : 640653667861 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:

- 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 :

6406532238005. ✔ Useful Data has been mentioned above.

6406532238006. ✖ This data attachment is just for a reference & not for an evaluation.

Sub-Section Number :	2
Sub-Section Id :	64065394983
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653667862 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 : (60 to 61)

Question Label : Comprehension

In a survey among 140 people, it was found that 75% of these 140 people like playing cricket and 50% of all the 140 people like playing football. Note that, some people may not like both games that could be 0 also.

Use this information to answer the given subquestions

Sub questions

Question Number : 60 Question Id : 640653667863 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

What is the minimum number of people who like both games?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

35

Question Number : 61 Question Id : 640653667864 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

If there are 10 people who don’t like both games, then what is the number of people who like only cricket?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

60

Sub-Section Number :	3
Sub-Section Id :	64065394984
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 62 Question Id : 640653667865 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 a function $f(x) = |x| + x^2 + 2$. Which of the following options is true?

Options :

6406532238009. ✖ Domain of f is $\mathbb{R} \setminus \{0\}$.

6406532238010. ✔ The minimum value of f is 2.

6406532238011. ✖ f is one-one function.

6406532238012. ✖ Range of f is the interval $(0, \infty)$

Question Number : 63 Question Id : 640653667868 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 a quadratic function $q(x) = ax^2 + 20x + 15$, where $a \in \mathbb{R} \setminus \{0\}$. If slope of $q(x)$ at $x = 2$ is equal to the slope of the line $y = 40x + 5$. Then which of the following options is true?

Options :

6406532238018. ✔ $a = 5$

6406532238019. ✖ $a = 8$

6406532238020. ✖ $q(x)$ has a unique root.

6406532238021. ✖ $q(x)$ has the minimum value at $x = 2$.

Sub-Section Number : 4

Sub-Section Id : 64065394985

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 64 Question Id : 640653667866 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 three straight lines:

- $\ell_1 : 2x + 3y = 2$
- $\ell_2 : x + 3y = 5$
- $\ell_3 : 3x + 9y = 7$

Which of the following options is true?

Options :

6406532238013. ✖ ℓ_1 and ℓ_2 are parallel.

6406532238014. ✔ ℓ_2 and ℓ_3 are parallel.

6406532238015. ✖ ℓ_1 and ℓ_3 are perpendicular.

6406532238016. ✖ ℓ_1 is equidistant from the line ℓ_2 and ℓ_3.

Sub-Section Number : 5

Sub-Section Id : 64065394986

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 65 Question Id : 640653667867 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

A retail shopkeeper is interested in purchasing clothes from a wholesale supplier. The price per clothing item is ₹1800 if the purchase quantity is 150 items or less. However, if the shopkeeper buys more than 150 items, the cost per clothing item decreases by ₹10 for each item exceeding the initial 150. For instance, if the shopkeeper acquires 160 items, the cost per clothing item would be ₹1800 – (10 × (160 – 150)) =₹1700. Let x represent the number of items he buys. Determine the value of 'x' such that the amount paid by the retail shopkeeper to the wholesale supplier is maximum.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

165

Sub-Section Number : 6

Sub-Section Id : 64065394987

Question Shuffling Allowed : Yes

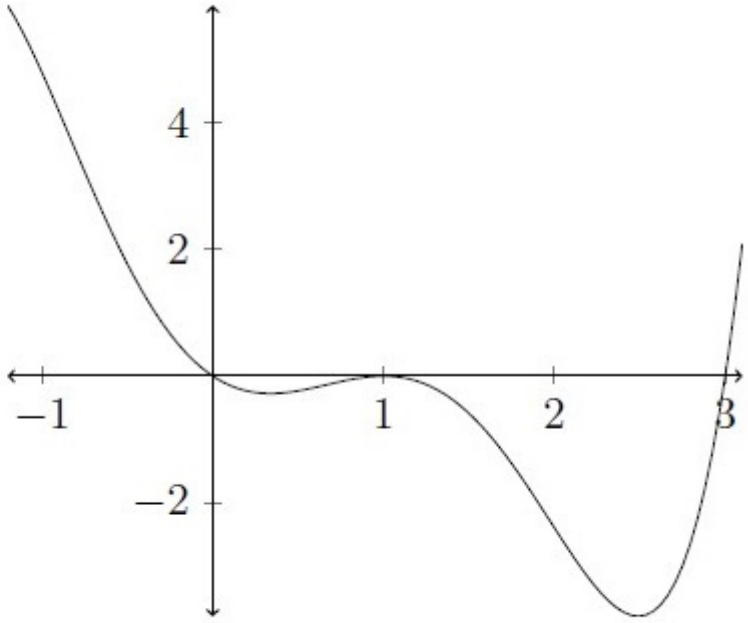
Is Section Default? : null

Question Number : 66 Question Id : 640653667869 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 a polynomial $p(x)$ whose graph is given below:



Which of the following options is/are true?

Options :

6406532238022. ✔ The minimum possible degree of $p(x)$ is 4.

6406532238023. ✖ There is a turning point at $x = 0$.

6406532238024. ✖ The number of turning points is 4.

6406532238025. ✔ The possible multiplicity of the root 3 is 1.

Question Number : 67 Question Id : 640653667876 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 :

6406532238039. ✖ If S is the set $\{1, 2, 3, 4\}$, then cardinality of the set $S \times S$ is 4.

6406532238040. ✔ Vertex of the parabola $y - 1 = (x - 2)^2$ is $(2, 1)$.

6406532238041. ✔ If S is the set $\{1, 2, 3, 4\}$, then any subset of the set $S \times S$ is a relation on set S.

6406532238042. ✖ A line that is parallel to $Y-$ axis has slope 0.

Sub-Section Number :	7
Sub-Section Id :	64065394988
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653667870 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 : (68 to 69)

Question Label : Comprehension

Consider four polynomials $p(x), q(x), r(x)$ and $s(x)$ as follows:

- $p(x) = x^2 - 5x - 6$
- $q(x) = x + 1$
- $r(x) = 2x^3 - 4x^2 - 6x$
- $s(x) = p(x)q(x)r(x)$

Use this information to answer the given subquestions.

Sub questions

Question Number : 68 Question Id : 640653667871 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 :

6406532238026. ✖ The degree of $p(x) + q(x)$ is 3.

6406532238027. ✔ The degree of $p(x)r(x)$ is 5.

6406532238028. ✔ When $p(x)$ divides $r(x)$ then obtained remainder is a linear function.

6406532238029. ✖ When $p(x)$ divides $r(x)$ then obtained remainder is a quadratic function.

Question Number : 69 Question Id : 640653667872 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 :

6406532238030. ✖ There are 5 distinct roots in $s(x)$.

6406532238031. ✔ There are 3 turning points in $s(x)$.

6406532238032. ✖ Multiplicity of the root 1 is 2 in $s(x)$.

6406532238033. ✔ Multiplicity of the root 3 is 1 in $s(x)$.

Sub-Section Number :	8
Sub-Section Id :	64065394989
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653667873 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 : (70 to 71)

Question Label : Comprehension

Let P be the intersection points of lines $2x+y=1$ and $x-y=2$.

Let ℓ be a straight line that passes through the point P and the $y-$ intercept of the polynomial $p(x)=x^3+3x+1$.

Consider the following data set in Table 1:

x	1	2	-1	0
y	-2	-1	2	3

Table: 1

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 70 Question Id : 640653667874 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

Which of the following options is true?

Options :

6406532238034. ✔ Slope of the line ℓ is -2.

6406532238035. ✖ Equation of the line ℓ is $-2x + y = 1$.

6406532238036. ✖ Equation of the line ℓ is $2x - y = 1$.

6406532238037. ✖ The distance of the line $x - y = 2$ from the point $(0, 1)$ is 1 unit.

Question Number : 71 Question Id : 640653667875 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

Find the SSE, calculated for the line ℓ.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Sub-Section Number :	9
Sub-Section Id :	64065394990
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653667877 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 : (72 to 73)

Question Label : Comprehension

Let S be the set of all quadratic functions i.e.,

$S = \{ax^2 + bx + c \mid a \neq 0, a, b, c, x \in \mathbb{R}\}$.

Define two relations R_1 and R_2 on the set S

i.e., $R_1, R_2 : S \to S$ as follows:

- R_1 : Two elements of the set S are said to be related if they have the same axis of symmetry.
- $R_2 : R_2 = \left\{\left((ax^2 + bx + c), (ax^2 + cx + b)\right) \mid a \neq 0, a, b, c, x \in \mathbb{R}\right\} \subset S \times S$.

Use this information to answer the given subquestions.

Sub questions

Question Number : 72 Question Id : 640653667878 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 :

6406532238043. ✔ R_1 is a reflexive relation.

6406532238044. ✔ R_2 is a symmetric relation.

6406532238045. ✖ R_1 is not a transitive relation.

6406532238046. ✖ R_2 is a transitive relation.

Question Number : 73 Question Id : 640653667879 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

Which of the following options is true?

Options :

6406532238047. ✖ R_1 is a function.

6406532238048. ✔ R_2 is a function.

6406532238049. ✖ R_2 is not a one-one function.

6406532238050. ✖ R_2 is not an onto function.

Sem1 Statistics1

Section Id :	64065344874
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	11
Number of Questions to be attempted :	11
Section Marks :	40
Display Number Panel :	Yes
Section Negative Marks :	0