```
C = False, D = False
if(isKey(dict, X.Author) and (X.Pages >= 200)){
    C = True
}
if(isKey(dict, X.Author) and (X.Year >= 2000)){
    D = True
}
if(C or D){
    dict[author] = dict[author] + 1
}
```

Maths 1

Section Id :	64065353258
Section Number :	2
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 :	640653112563
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 17 Question Id : 640653770409 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 : 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 :

6406532577174. ✔ YES

6406532577175. ✖ NO

Question Number : 18 Question Id : 640653770410 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 :

6406532577176. ✔ Instructions has been mentioned above.

6406532577177. ✖ This Instructions is just for a reference & not for an evaluation.

Sub-Section Number : 2

Sub-Section Id : 640653112564

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 19 Question Id : 640653770416 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

Choose the correct option(s) from the following:

Options :

6406532577194. ✔ If g is an even function, then $f \circ g$ is always an even function

6406532577195. ✖ If f is an invertible increasing function, then f^{-1} is a decreasing function.

6406532577196. ✔ The function $f: \mathbb{N} \to \mathbb{N}$ given by $f(0) = f(1) = f(2) = 1$ and $f(x) = x - 1$ for $x \geq 3$ is onto but not one-one.

6406532577197. ✖ There exists a function g which is not one-one and a function f which is one-one such that $f \circ g$ is one-one.

Question Number : 20 Question Id : 640653770429 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

Choose the set of correct options.

Options :

6406532577207. ✖ If a function is continuous at a particular point, then the function is differentiable at that point.

6406532577208. ✔ If a function is differentiable at a particular point, then the function must be continuous at that point.

6406532577209. ✔ If $f(x)$ is differentiable at the point a, then $cf(x)$ is differentiable at the point a, for all $c \in \mathbf{R}$, and $(cf)'(a) = cf'(a)$

6406532577210. ✖ If $f(x)$ and $g(x)$ are differentiable functions, then $|(f+g)(x)|$ is also a differentiable function.

Sub-Section Number : 3

Sub-Section Id : 640653112565

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 21 Question Id : 640653770428 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

If $f(x) = \sqrt{9-x^2}$, then find out the value of $8\sqrt{8} \times \lim\limits_{x \to 1} \dfrac{f(x)-f(1)}{x-1}$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-8

Question Number : 22 Question Id : 640653770430 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

Consider the function $f(x) = \dfrac{2x^2}{|x|}$. Then $\lim\limits_{x \to 0} f(x)$ is

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

0

Sub-Section Number :	4
Sub-Section Id :	640653112566
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 23 Question Id : 640653770423 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 function

$$f(x) = \begin{cases} \dfrac{3x}{(x+2)^2} & x \leq -1 \\ 2x - 5 & -1 < x \leq 1 \\ \dfrac{-8}{x+1} & x > 1. \end{cases}$$

Find the total number of points in $(-2, 2)$ at which $f(x)$ is not continuous.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

Question Number : 24 Question Id : 640653770424 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

Let f be a differentiable function such that $f'(4) = 1$ and $f(4) = -3$. If $y = ax + b$ denotes the tangent of the function f at $x = 4$ then find the value of b.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-7

Sub-Section Number :	5
Sub-Section Id :	640653112567
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653770417 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

Answer the given subquestions.

Sub questions

Question Number : 25 Question Id : 640653770418 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 number of solution(s) of the equation $9^x + 3^x - 6 = 0$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 26 Question Id : 640653770419 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 number solution(s) of the equation $\ln(7) + \ln(2 - 4x^2) = \ln(14)$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Id : 640653770420 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 : (27 to 28)

Question Label : Comprehension

Let $f(x) = \begin{cases} -|x^2 - 1| & x < a \\ \sqrt{x+2} & x \geq a \end{cases}$

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 27 Question Id : 640653770421 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 smallest value of *a* such that the function *f* is defined for all real numbers.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-2

Question Number : 28 Question Id : 640653770422 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 largest value of *a* such that the function *f* is defined for all real numbers and satisfies the horizontal line test.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-1

Sub-Section Number :	6
Sub-Section Id :	640653112568
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653770411 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 : (29 to 32)

Question Label : Comprehension

Let $f(x) = \sqrt{x}$ and $g(x) = \sqrt{3-x}$.

	Composition of functions		Function		Domain
i)	$f \circ g$	a)	$\sqrt{3-\sqrt{x}}$	1)	$[0, \infty)$
ii)	$g \circ f$	b)	$\sqrt[4]{x}$	2)	$[-6, 3]$
iii)	$f \circ f$	c)	$\sqrt{3-\sqrt{3-x}}$	3)	$(-\infty, 3]$
iv)	$g \circ g$	d)	$\sqrt[4]{3-x}$	4)	$[0, 9]$

Table: M1T1

From the above table, answer the given subquestions.

Sub questions

Question Number : 29 Question Id : 640653770412 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

Choose the correct option from the following:

Options :

6406532577178. ✖ $i) - b) - 3)$

6406532577179. ✖ $i) - c) - 1)$

6406532577180. ✖ $i) - d) - 2)$

6406532577181. ✔ $i) - d) - 3)$

Question Number : 30 Question Id : 640653770413 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

Choose the correct option from the following:

Options :

6406532577182. ✔ $ii) - a) - 4)$

6406532577183. ✖ $ii) - b) - 3)$

6406532577184. ✖ $ii) - c) - 2)$

6406532577185. ✖ $ii) - a) - 3)$

Question Number : 31 Question Id : 640653770414 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

Choose the correct option from the following:

Options :

6406532577186. ✖ $iii) - b) - 3)$

6406532577187. ✔ $iii) - b) - 1)$

6406532577188. ✖ $iii) - d) - 3)$

6406532577189. ✖ $iii) - c) - 2)$

Question Number : 32 Question Id : 640653770415 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

Choose the correct option from the following:

Options :

6406532577190. ✖ $iv) - c) - 3)$

6406532577191. ✖ $iv) - a) - 1)$

6406532577192. ✔ $iv) - c) - 2)$

6406532577193. ✖ $iv) - b) - 2)$

Question Id : 640653770425 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 : (33 to 34)

Question Label : Comprehension

Find the limits of the given sequences in the subquestions.

Sub questions

Question Number : 33 Question Id : 640653770426 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

$\{a_n\}$ such that $a_n = \dfrac{100n^2 - 11}{100n^3 + 7}$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

0

Question Number : 34 Question Id : 640653770427 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

Evaluate the following limit:

$$\lim_{x \to 2} \frac{x^6 - 24x - 16}{x^3 + 2x - 12}$$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

12

Statistics1

Section Id :	64065353259
Section Number :	3
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
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 :	640653112569
Question Shuffling Allowed :	No
Is Section Default? :	null