QUIZ -2



OCT - 2021

- CT 1
- Statistics
- **English -1**
- Maths -1

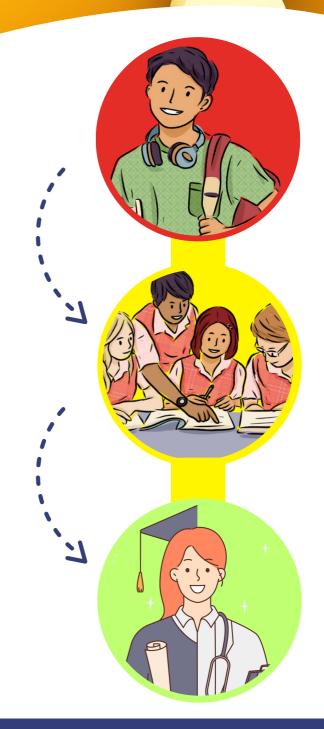












Question Paper Preview

Notations:

1.Options shown in green color and with ✓ icon are correct.

2.Options shown in red color and with * icon are incorrect.

IIT M QUIZ FOUNDATION EXAM QPB 31 OCT

Question Paper Name : 2021

Total Marks: 350

Sem1 Maths1

Number of Questions: 12

Section Marks: 50

Correct Marks: 0

Question Label: Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 1: MATHEMATICS FOR DATA SCIENCE 1"

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 <u>TOP</u> FOR THE SUBJECTS REGISTERED BY YOU)

Options:

A. VES

B. * NO

Question Number: 2

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:
 - R= Set of real numbers
 - Q= Set of rational numbers
 - Z= Set of integers
 - N= Set of natural numbers
- The set of natural numbers includes 0.

Options:

A. V Useful Data has been mentioned above.

B. * This data attachment is just for a reference & not for an evaluation.

Correct Marks:5

Question Label: Multiple Select Question

Let functions $f(x) = \log x^2$, $g(x) = 2 \log x$, and $h(x) = (\log x)^2$ respectively. Choose the set of correct options.

Options:

A. g(f(x)) is not an injective function in its domain.

B. \checkmark The range of |f(x)| and h(x) are equal.

g(f(x)) is an injective function in its domain.

The range of h(x) and f(x) are equal.

Question Number: 4

Correct Marks: 5

Question Label : Multiple Select Question

Choose the correct options from the following

Options:

There are infinitely many polynomial p(x) of degree three such that p(-2) = 0, p(-4) = 0, p(-6) = 0.

B. \checkmark X-axis is the tangent of both $2x^2$ and $-2x^2$

The inverse of $f(x) = x^2 + 1$ is $g(x) = -\sqrt{(x-1)}$

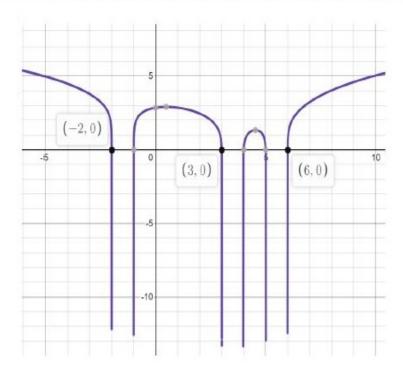
The domain of $h(x) = \frac{1}{\sqrt{|x|-x}}$ is $(-\infty, 0)$

Question Number: 5

Correct Marks: 5

Question Label: Multiple Select Question

Choose the correct options with respect to the graph of a function f(x) shown below.



Options:

A. \checkmark The given function is not defined in the restricted domain $(-2,0) \cup (3,6)$.

The given function is invertible in the restricted domain $(-\infty, -5) \cup (1, 3) \cup B$. * $(4, 5) \cup (8, \infty]$

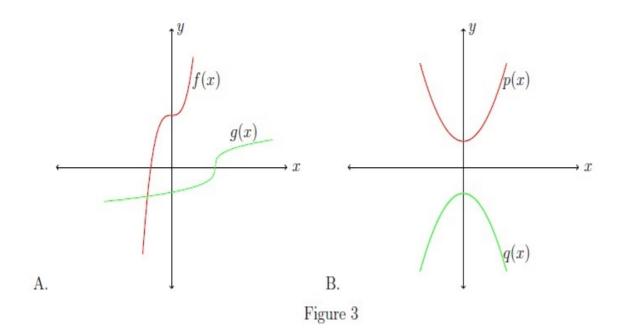
The graph of
$$f(x)$$
 could be a graph of C. \checkmark $\log_{10}\left(1+(x+2)(x+1)(x-3)(x-4)(x-5)(x-6)\right)$

The function is invertible in restricted domain $(-\infty, -1)$

Question Number: 6

Correct Marks:5

Let f(x), g(x), p(x) and q(x) be the functions defined on \mathbb{R} . Refer Figure 3 (A and B) and choose the correct option(s) from the following.



Options:

A. $\checkmark g(x)$ may be the inverse of f(x).

B. \checkmark p(x) and g(x) are even functions but f(x) and g(x) are neither even functions nor odd functions.

C. $\checkmark q(x)$ could not be the inverse function of p(x).

D. \checkmark p(x), g(x) can be an even degree polynomial functions and f(x) can be an odd degree polynomial functions.

Question Number: 7

Correct Marks: 5

Question Label: Short Answer Question

A function f(x), fit for the data given in the Table-1 recorded by a student, is

$$y = f(x) = 10^{x^2(x^2-1)(x^2-9)(x^2+1)} - 3 - \log_{10}(c-5)$$

What will be the value of c, so that SSE (Sum Squared Error) will be minimum?

\boldsymbol{x}	-3	-1	0	1	3
y	-4	-4	-4	-4	-4

Table-1

NOTE: Enter your answer to the nearest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

105

Question Numbers: (8 to 10)

Question Label: Comprehension

An ant named B, wants to climb an uneven cliff and reach its anthill (i.e., home of ant). On its way home, B makes sure that it collects some food. A group of ants have reached the food locations which are at x-intercepts of the equation $|x-5| \frac{x^2-8x+15}{x-2} = 1$, wherever defined. As ants secrete pheromones (a form of signals which other ants can detect and reach the food location), B gets to know the food location. Based on this information answer the given subquestions

Sub questions

Question Number: 8

Correct Marks: 2

Question Label : Multiple Select Question

Which of the following statements is (are) correct?

Options:

The given equation will not be defined $A \ll 1$ when x = 2 or 5.

The given equation will not be defined $\mathbf{B} \times \mathbf{b} = \mathbf{b} \times \mathbf{b} + \mathbf{b} \times \mathbf{b} = \mathbf{b} \times \mathbf{b}$

Factors of
$$x^2 - 8x + 15$$
 are $(x - 3)$ and $(x - 5)$.

Factors of $x^2 - 8x + 15$ are (x+3) and (x+5).

Question Number:9

Correct Marks: 1

Question Label: Multiple Select Question

Which of the following could be the

x-intercepts of
$$|x-5|^{\frac{x^2-8x+15}{x-2}} = 1$$
?

Options:

- A. 🗸 4
- B. **\$** 5
- C. **%** 2
- D. 🗸 3

Question Number: 10

Correct Marks: 2

Question Label: Short Answer Question

How many such food locations are there?

NOTE: Enter your answer to the nearest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

3

Question Numbers : (11 to 12)

Question Label: Comprehension

A mobile company offers two plans. Plan A costs ₹300 and offers 1000 free minutes per month with a charge of 15 paise per minute for every additional minute. Plan B costs ₹400 and offers 1500 free minutes per month with a charge of 10 paise per minute for every additional minute. Let $C_A(t)$ and $C_B(t)$ represent the total cost per month for the plan A and the plan B respectively, where t represents the number of minutes used. If Sneha uses 2500 minutes per month answer the given subquestions

Sub questions

Question Number: 11

Correct Marks: 2

Question Label: Multiple Select Question

Which of the following statements is (are) correct?

Options:

A. ✓ Total cost of plan A will be 525.

B. * Total cost of plan B will be 400.

C. ✓ Total cost of plan *B* will be 550.

D. * Total cost of plan A will be 650.

Question Number: 12

Correct Marks: 1

Question Label: Short Answer Question

What will be the value of

 $|C_A(t)-C_B(t)|$?

NOTE: Enter your answer to the nearest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Question Numbers: (13 to 15)

Question Label: Comprehension

Nisha researches on various cosmic signals. She found that a harmful cosmic signal of the form $y=3^{ax}$ has the potential to harm the entire life form on the planet Earth. For her interest she found two cosmic signals which are of form $f(x) = \log_{2x+3}(6x^2 + 23x + 21)$ (where 2x + 3 > 0 and $2x + 3 \neq 1$) and $g(x) = -\log_{3x+7}(4x^2 + 12x + 9) + 4$ (where 3x + 7 > 0 and $3x + 7 \neq 1$) which can destroy this harmful signal. She found that when a harmful cosmic signal passes through the intersection point of f(x) and g(x), its effect nullifies before reaching the Earth. She has to find the value of a so that she can prevent this harmful cosmic signal from reaching the Earth. Based on this information answer the given subquestions

Sub questions

Question Number: 13

Correct Marks: 2

Question Label: Multiple Select Question

Which of the following statements is (are) correct?

Options:

The equation f(x) = g(x) has only one A. \checkmark real root.

B. * The equation f(x) = g(x) has two real roots.

 $y = 3^{ax}$ must pass through the intersection point of f(x) and g(x) to protect the life form on Earth.

The equation f(x) = g(x) has three real roots.

Correct Marks: 2

Question Label: Short Answer Question

Enter the *x*-coordinate of the point of intersections of f(x) = g(x)

NOTE: Enter your answer in two decimal places

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

-0.25

Question Number: 15

Correct Marks: 2

Question Label: Short Answer Question

What will be the value of a.

NOTE: Enter your answer to the nearest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

-4

Question Numbers: (16 to 19)

Question Label: Comprehension

A group of Biotechnology students were creating a Genetically Modified Plant (GMP). They found that the expression $f(x) = \frac{a}{1+e^{-0.5x}}$ gives the increase in the number of leaves on the plant as a function of days. On 0^{th} day there were 10 leaves. By the end of 36^{th} day, the number of leaves started decreasing as function of $g(x) = -10 \times 2^{\frac{x}{b}} + 100$ and eventually there were no leaf on that plant after some days (Refer Figure 2). Consider f(x) and g(x) represents the number of leaves on that plant by the end of x^{th} day.

Note:

- Take 19.9... as 20.
- (2) For simplicity consider a leaf is fully grown when f(x) is an integer value.

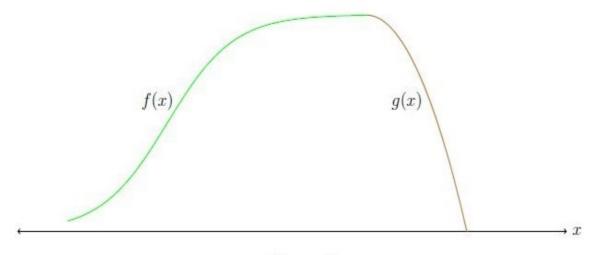


Figure 2

Based on the above data, answer the given subquestions.

Sub questions

Question Number: 16

Correct Marks: 1

Question Label : Short Answer Question

What will be the value of a.

NOTE: Enter your answer to the nearest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText **Possible Answers:** 20 **Question Number: 17 Correct Marks: 2** Question Label: Multiple Select Question Which of the following statements is (are) correct? **Options:** A. \checkmark b can be found using f(36) = g(36)B. * b cannot be determined. C. \checkmark By the end of 36th day, there are roughly 20 leaves. D. * By the end of 36th day, there are roughly 30 leaves. **Question Number: 18 Correct Marks: 1** Question Label: Short Answer Question What will be the value of b. **NOTE:** Enter your answer to the nearest integer. Response Type: Numeric **Evaluation Required For SA:** Yes **Show Word Count:** Yes **Answers Type:** Equal **Text Areas:** PlainText **Possible Answers:**

Question Number: 19

Correct Marks: 2

12

Question Label: Short Answer Question

Find the value of $2\log_a(\frac{100b}{3})$

NOTE: Enter your answer to the nearest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

4

Question Numbers: (20 to 21)

Question Label: Comprehension

A rock is thrown in a pond, and the radius of the ripple circles increases at a rate of 0.2 meter per second.

Note: Area of circle = πr^2 , where r is the radius of the circle and π = 3.14 .

Based on the above data, answer the given subquestions.

Sub questions

Question Number: 20

Correct Marks: 2

Question Label: Short Answer Question

What is the radius of the circle after 10 seconds?

NOTE: Enter your answer to the nearest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes **Answers Type:** Equal **Text Areas:** PlainText **Possible Answers:** 2 **Question Number: 21 Correct Marks: 3** Question Label: Short Answer Question What will be the value of $\frac{A}{\pi}$, where A is the area (in square meter) of the circle after 10 seconds. **NOTE:** Enter your answer to the nearest integer. **Response Type:** Numeric **Evaluation Required For SA:** Yes **Show Word Count:** Yes **Answers Type:** Equal **Text Areas:** PlainText **Possible Answers:** 4

Sem1 Statistics1

Number of Questions: 15

Section Marks: 50

Question Number: 22

Correct Marks: 0

Question Label: Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 1: STATISTICS FOR DATA SCIENCE 1"

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 <u>TOP</u> FOR THE SUBJECTS REGISTERED BY YOU)

Options:

A. VES

B. * NO

Question Number: 23

Correct Marks: 4

Question Label: Short Answer Question

Of 10 randomly selected matches, it is noticed that the average runs scored by Virat Kohli in the first four matches is 30 and in the last three matches is 65. If it is known that the runs scored by him in the 6^{th} match is 50% more than that of the 5^{th} match but is 21 less than the 7^{th} match, then what is the average of runs scored by him in 6^{th} and 7^{th} match given the average runs scored in the 10 selected matches is 80. (Enter the answer correct to 1 decimal place accuracy)

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Text Areas: PlainText

Possible Answers:

184.1 to 184.9

Question Number: 24

Correct Marks: 4

Question Label: Short Answer Question

Marks(out of 10) in the Statistics exam and I.Q. level(Out of 20) of 6 students are tabulated in a Table Q.3:

Marks	8	3	3	5	4	7
I.Q.	15	14	12	11	15	17

Table Q.3

Find the correlation coefficient between marks and IQ level of students?

(Enter the answer correct to 2 decimal place accuracy)

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Range

Text Areas: PlainText

Possible Answers:

0.48 to 0.56

Question Number: 25

Correct Marks: 4

Question Label: Short Answer Question

In a box, there are 19 consecutively numbered tickets. In how many ways, three tickets can be drawn at random such that the numbers on these tickets are in arithmetic progression(A.P.)? (Note: An arithmetic progression is a sequence where the differences between every two consecutive terms are the same)

NOTE: Enter the answer to the next smallest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

Correct Marks: 3

Question Label: Short Answer Question

The number of athletes are grouped in Table Q.1 based on the time taken by them to complete a 300 m race. What is the value of n if the approximate mean time to complete the race is 64 seconds?

Time taken (in seconds)	55-60	60-65	65-70	70-75
Number of athletes	2	n	3	1

Table Q.1

NOTE: Enter the answer to the next smallest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

4

Question Number: 27

Correct Marks: 3

Question Label: Short Answer Question

Four dice are rolled simultaneously. In how many of the outcomes will the third and fourth die

turn up a 6 or 1?

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

144

Question Number: 28

Correct Marks: 3

Question Label: Short Answer Question

If
$$r! \times (^{n-1}C_{r-1} + ^{n-1}C_r) + (r+1)! \times (^{n-1}C_r + ^{n-1}C_{r+1}) + (r+2)! \times (^{n-1}C_{r+1} + ^{n-1}C_{r+2}) = x$$
.

then for n = 6 and r = 3, calculate the value of x?

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

1200

Question Number: 29

Correct Marks: 3

Question Label: Short Answer Question

How many 5-digit numbers can be formed from digits 2, 4, 3, 6, 7 (repetition is allowed) which are

divisible by 2?

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas: PlainText

Possible Answers:

1875

Correct Marks: 3

Question Label: Multiple Choice Question

If Cov(X,Y) = 0, Var(X) > 0 and Var(Y) > 0, then which of the following statements is/are always true:

Options:

A. * The variables X and Y are dependent.

B. * The variables X and Y are independent.

C. $\sqrt{r} = 0$

D. ** r > 0

Question Number: 31

Correct Marks: 3

Question Label: Multiple Choice Question

How many four letter words, with or without meaning, can be formed using the letters of the word 'VERTIGO' without repetition, such that each word should contain both 'I' and 'O'?

Options:

A.
$$\checkmark {}^{4}P_{2} \times {}^{5}P_{2}$$

B. *
$${}^4P_2 \times {}^6P_2$$

$$C * {}^4P_2 \times {}^5C_2$$

D. *
$${}^4P_2 \times {}^6C_2$$

Question Number: 32

Correct Marks: 4

A survey is conducted to determine the preference of type of car on the basis of gender. The data is tabulated in Table Q.2.

Gender		Type of car	
	SUV	Hatchback	Sedan
Male	114	87	99
Female	76	57	67

Table Q.2

Which of the following statements is/are true:

Options:

- A. More than 40% of females prefer SUV.
- B. ✓ Of all the individuals who prefer Sedan, nearly 60% are males.
- C. ✓ If all row relative frequencies are similar within each column then, it implies that all column relative frequencies will also be similar within each row.
- D. * If all column relative frequencies are similar within each row then, it does not imply that all row relative frequencies will also be similar within each column.
- E. * There is an association between the type of car and gender
- F. ✓ There is no association between the type of car and gender.

Question Number: 33

Correct Marks: 4

Question Label: Multiple Select Question

Consider the events:

- A: The number of outcomes in which the sum of the digits that appear on the face is odd when a fair die is rolled thrice.
- B: The number of outcomes in which two cards drawn from a pack of well shuffled cards such that both are face cards.
- C: The number of ways of posting 6 different letters in 2 different post boxes such that at least one letter is posted in each of the boxes.

In which of these events do the total number of outcomes exceed 60?.

Options:

- A. **✓** A
- B. **⋖** B
- C. **✓** C

D. * None of these

Question Number: 34

Correct Marks: 4

Question Label: Multiple Choice Question

John wants to reach the top-right corner of a 9×7 grid starting from the bottom-left corner. In how many ways can he do it if he can only move right or in the upward direction along the edges of the grids?

Options:

A. * 2¹⁶

B * 16!

C. \checkmark $^{16}C_{9}$

D ³⁶P₉

Question Number: 35

Correct Marks: 4

Question Label : Multiple Choice Question

John parked his car among 10 cars in a row in a mall parking, not at either end, which has a capacity of 11 cars. In how many ways is it possible that on his return from the mall, he finds that exactly 6 (including his car) of the 11 places are still occupied, if both neighbouring parking plots around his car are empty?

Options:

A. **3** 84

B. **3**20

C. **✓** 56

D. ***** 28

Question Number : 36	
Correct Marks : 4	
Question Label : Multiple Choice Question	
Marks (out of 100) of two statistics students in 7 subjects are a Student A: 78, 72, 77, 79, 78, 81, 75. Student B: 83, 80, 88, 86, 81, 81, 87. Which student may be considered to be the more consistent st (Note: Consistent student is one which have less variance of magnetic forms of the student of the student of the student is one which have less variance of magnetic forms.	udent?
Options :	
A. ✓ Student A	
B. * Student B	
C. * Both are equally consistent.	
Carra 4 CT	
Sem1 CT	
Number of Questions: 12	
Section Marks: 50	
Question Number : 37	
Correct Marks : 0	
Question Label: Multiple Choice Question THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 1: CON	MPUTATIONAL THINKING"
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 \underline{TOP} FOR THE SREGISTERED BY YOU)	SUBJECTS
Options :	
A. ✓ YES	

B. * NO

Correct Marks: 0

Question Label : Multiple Choice Question

Scores										
RowNo	Name	Gender	DateOfBirth	CityTown	Mathematics	Physics	Chemistry	Total		
0	Bhuvanesh	M	7 Nov	Erode	68	64	78	210		
							-	1		

Words								
RowNo	Word	PartOfSpeech	LetterCount					
0	It	Pronoun	2					
0			2					
64	cane.	Noun						

Library									
RowNo	Name	Author	Genre	Language	Pages	Publisher	Year		
0	Igniting Minds	Kalam	Nonfiction	English	178	Penguin	2002		

Olympics									
Seq. No.	Name	Gender	Nationality	Host country	Year	Sport	Medal		
0	Karnam Malleswari	F	Indian	Australia	2000	Weightlifting	Bronze		
	F = 2, 2, 2					-			
49	Michael Phelps	M	American	China	2008	Swimming	Gold		

Options:

A. ✓ Useful Data has been mentioned above.

B. * This data attachment is just for a reference & not for an evaluation.

Question Number: 39

Correct Marks: 5

Question Label: Multiple Choice Question

The given pseudocode is executed using the "Words" dataset. C stores the number of nouns which have at least one adjective adjacent to it. Choose the correct code fragment to complete the pseudocode.

Options:

```
foreach Y in N {
          if (member(A, Y - 1)) or member(A, Y + 1)) {
              C = C + 1
          }
A. 🗸 }
      foreach Y in N {
          if (member(A, Y - 1)) and member(A, Y + 1)) {
              C = C + 1
          }
     }
B. 🗱
      foreach Y in A {
          if (member(N, Y - 1)) or member(N, Y + 1)) {
              C = C + 1
         }
C. * }
```

```
for
each Y in A {  if \ (member(N,\ Y\ -\ 1)) \ and \ member(N,\ Y\ +\ 1)) \ \{ \\ C=C+1 \\ \}  }
```

Correct Marks: 6

Question Label: Multiple Choice Question

Let L be a non-empty list of integers, and D be a non-empty dictionary which are given below:

$$\begin{aligned} \mathbf{L} &= [\text{-}20,\,\text{-}10,\,0,\,10,\,20] \\ \mathbf{D} &= \{\text{`a': -}20,\,\text{`b': -}10,\,\text{`c': 0, `d': 10, `e': 20} \} \end{aligned}$$

Match the following expressions on the left side with the appropriate values on the right side.

a. D['b'] + D['d']

1. True

b. first(L) + last(L)

2. False

c. init(rest(rest(L))) ++ [D['c']]

3. Invalid key

d. [D['c']] ++ rest(init(init(L)))

4. 0

e. member(keys(D), 0)

5. [0, 10, 0]

f. isKey(D, "IITM")

[0, -10, 0]

Options:

B.
$$\checkmark$$
 a - (4), b - (4), c - (5), d - (6), e - (2), f - (2)

Question Number: 41

Correct Marks: 4

The following pseudocode is executed using the "Library" dataset. At the end of execution, A captures a dictionary with author's name as key mapped to the list of books written by him/her. But the code may have mistakes. Identify all such mistakes (if any). It is a Multiple Select Question

```
1
     A = \{ \}
2
     while (Table 1 has more rows) {
3
          Read the first row X in Table 1
4
          if (isKey(A, X.Author)) {
               A[X.Name] = A[X.Name] ++ [X.Author]
5
6
7
          else {
               \mathbf{A}[\mathbf{X}.\mathit{Name}] = [\mathbf{X}.\mathit{Author}]
8
9
          Move X to Table 2
10
11 }
```

Options:

A. * Line 4: Incorrect sequence of parameters for **isKey**

B. Line 5: Incorrect update of A

C. ✓ Line 8: Incorrect update of A

D. * No mistakes

Question Number: 42

Correct Marks: 4

The given pseudocode is executed using the "Words" dataset. unique(Z) returns a list with unique letters of word Z. For example unique(computational) returns ['c', 'o', 'm', 'p', 'u', 't', 'a', 'i', 'n', 'l'].

```
D = \{ \}, A = 0
while (Table 1 has more rows) {
    Read the first row X in Table 1
    D = updateDictionary(D, X)
    Move X to Table 2
}
foreach C in keys(D) {
    if (C is a vowel and D[C] > A) {
        A = D[C]
}
Procedure updateDictionary(D, Z)
    Y = unique(Z.Word)
    foreach B in Y {
        if (isKey(D, B)) {
            D[B] = D[B] + 1
        else {
            D[B] = 1
    return (D)
End updateDictionary
```

At the end of execution, A represents the number of words containing the vowel that

Options:

A. • Occurs in the maximum number of words in the dataset.

B. * Occurs the maximum number of times in a single word.

C. * Occurs in the maximum number of sentences in the dataset.

D. * Is the most frequent vowel in the dataset.

Question Number: 43

Correct Marks: 4

The given pseudocode is executed using the "Scores" dataset. Let overall be a list sorted in descending order of students' total marks. Each element of overall is a list represented as [Seq.No., Gender].

At the end of execution of the code below, D stores two sequence numbers. Choose the possible correct option(s) regarding elements of D. It is a Multiple Select Question

```
\begin{split} D &= [first(first(overall))] \\ A &= last(first(overall)) \\ foreach \ B \ \ in \ rest(overall) \ \{ \\ if \ (last(B) \neq A) \ \{ \\ D &= D \ ++ \ [first(B)] \\ exitloop \\ \} \\ \} \end{split}
```

Options:

- A. * The elements correspond to the highest and second highest total marks obtained among boys.
- B. ✓ If the first element is the topper among girls, then the second element is the topper among boys.
- C. ✓ If the first element is the topper among boys, then the second element is the topper among girls.
- D. * The elements correspond to the highest and second highest total marks obtained among girls.

Question Number: 44

Correct Marks:5

Two trains are called "Opposite Trains" if they stop at the same set of stations but in the reverse order. isOpposite(N1, N2) returns True if trains with train numbers N1 and N2 are "Opposite Trains" and False otherwise.

trains is a dictionary with train number as key mapped to a list of stations which that train runs through. For example, trains = { 12281: ["Bhubaneswar", "Balasore", "Adra", "Varanasi", "Kanpur", "New Delhi"],.....}

In this example, the train with train number 12281 starts from Bhubaneswar and reaches New Delhi via Balasore, Adra, Varanasi, and Kanpur. Choose the correct code fragments to complete the procedure. It is a Multiple Select Question.

Options:

```
if (L1 \neq [ ]) {
    return(True)
}
else {
    return(False)

A. **

if (L1 \neq [ ]) {
    return(False)
}
else {
    return(True)

B. \checkmark
}
```

```
if (L2 == []) {
    return(False)
}
else {
    return(True)
}

if (L2 == []) {
    return(True)
}
else {
    return(False)
D. ♥
}
```

Correct Marks:5

A library is called an "International Library" if it satisfies the following criteria

- 1. It contains books in at least 50 languages.
- There are at least three languages such that there are at least 150 books in each of these three languages.

The given pseudocode is executed using the "Library" dataset. A is True if the library is an "International Library". Choose the correct code fragment(s) to complete the pseudocode. It is a Multiple Select Question

Options:

```
if (count == 3) {
A = \text{True}
}
if (langdict[Y] \geq 150) {
\text{count} = \text{count} + 1
A. **

if (langdict[Y] \geq 150) {
\text{count} = \text{count} + 1
}
if (count == 3) {
A = \text{True}
B. \checkmark }
```

```
if (langdict[Y] ≥ 150 and count == 3) {
    count = count + 1
    A = True
}

if (langdict[Y] ≥ 150) {
    A = True
    if (count == 3) {
        count = count + 1
    }

D. ※ }
```

Correct Marks: 5

trains is a dictionary with train number as key mapped to a list of stations which that train runs through. For example, trains = { 12281: ["Bhubaneswar", "Balasore", "Adra", "Varanasi", "Kanpur", "New Delhi"],......}. In this example, the train with train number 12281 starts from Bhubaneswar and reaches New Delhi via Balasore, Adra, Varanasi, and Kanpur.

At the end of execution of the code below, L stores the names of stations through which the maximum number of trains pass. But the code may have mistakes. Identify all such mistakes (if any). Assume that all statements not listed in the options below are free of errors. It is a Multiple Select Question.

```
stns = \{ \}, N = 0, L = [ ]
2
    foreach X in keys(trains) {
3
        stns = updateDictionary(stns, X)
4
    foreach Y in keys(stns) {
5
6
        if (stns[Y] == N) 
7
             L = L ++ [Y]
8
9
        if (stns[Y] > N) {
10
             L = [Y]
             N = stns[Y]
11
12
13
    }
14
    Procedure updateDictionary(D, Z)
15
        foreach A in trains [Z] {
16
             if (not isKey(D, A)) {
                 D[A] = 1
17
18
19
             else {
20
                 D[A] = D[A] + 1
21
22
23
        return (D)
24
    End updateDictionary
```

Options:

A. Line 7: Incorrect updation of L

B. * Line 11: Incorrect updation of N

C. Line 17: Incorrect updation of **D**

D. ✓ There is no mistake in the pseudocode.

Question Number: 47

Correct Marks: 3

Question Label: Short Answer Question

What will the value of count be at the end of the given pseudocode?

```
\begin{aligned} & count = 0, \, N = [1, \, 2, \, 3, \, 4, \, 5, \, 6, \, 7, \, 8, \, 9, \, 10] \\ & A = someList(N) \\ & B = someList(rest(rest(N))) \\ & for each \, Y \text{ in } A \, \{ \\ & for each \, Z \text{ in } B \, \{ \\ & if \, (Z == Y) \, \{ \\ & count = count + 1 \\ & \} \\ & \} \\ & \} \\ & \} \\ & Procedure \, someList(X) \\ & outlist = [  ], \, newList = X \\ & while \, (length(newList) > 0) \, \{ \\ & outlist = outlist \, + + \, [first(newList)] \\ & newList = rest(rest(newList)) \\ & \} \\ & return \, (outlist) \\ & End \, someList \end{aligned}
```

NOTE: Enter your answer to the nearest integer.

Response Type: Numeric

Evaluation Required For SA: Yes

Show Word Count: Yes

Answers Type: Equal

Text Areas : PlainText

Possible Answers:

4

Question Numbers: (48 to 50)

Question Label: Comprehension

The given pseudocode is executed using a dataset having the same fields as the "Words" dataset, and contains the following words -

"I ordered this product from Gitark. I am very happy to share my review regarding this awesome product. It is not only nice to use, but also has a very cool look. I think this is the best product which can be bought in this price range. The only bad thing was the broken and ugly packaging. Even with the bad packaging, I am satisfied with this awesome and cool product."

Consider the following information:

- unique(L) returns a list of unique elements of list L.
- comNo(L1, L2) returns the number of common elements in lists L1 and L2.
- max(A, B, C) returns the maximum among integers A, B, and C.
- Upper case and lower case are ignored when checking whether a word belongs to positiveList
 and negativeList.

```
positiveList = ["happy", "awesome", "nice", "fine", "best", "cool"]
negativeList = ["dull", "worse", "ugly", "hopeless", "bad"]
posSen = 0, negSen = 0, neutSen = 0, L = []
while (Table 1 has more rows) {
    Read the first row X in Table 1
    \mathbf{L} = \mathbf{L} + + [\mathbf{X}. Word]
    if (X. Word has full stop) {
        L = unique(L)
        posCount = comNo(positiveList, L)
        negCount = comNo(negativeList, L)
        if (posCount \geq 2 or negCount \geq 2) {
             if (posCount > negCount) {
                 posSen = posSen + 1
             else {
                 negSen = negSen + 1
         }
        else {
             neutSen = neutSen + 1
        \mathbf{L} = []
commentType = max(posSen, negSen, neutSen)
```

Based on this information, answer the given subquestions

Sub questions

Question Number: 48

Correct Marks: 3

Question Label: Multiple Choice Question

At the end of execution, the value of **posSen** will be

Options :
A. * 2
B. ✓ 3
C. * 4
D. * 5
Question Number : 49
Correct Marks : 3
Question Label : Multiple Choice Question
At the end of execution, the value of neutSen will be
Options :
A. 🛩 2
B. * 3
C. * 4
D. * 5
Question Number : 50
Correct Marks : 3
Question Label : Multiple Choice Question
At the end of execution, the value of commentType will be
Options :
A. * neutSen
B. ✓ posSen
C. * negSen

Sem1 English1

Number of Questions: 26

Section Marks: 50

Correct Marks: 0

Question Label: Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 1: ENGLISH 1"

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 <u>TOP</u> FOR THE SUBJECTS REGISTERED BY YOU)

Options:

A. VES

B. * NO

Question Numbers: (52 to 61)

Question Label: Comprehension

Reading the passage and answer the questions

I was born in the city of Bombay... once upon a time. No, that won't do, there's no getting away from the date: I was born in Doctor Narlikar's Nursing Home on August 15th, 1947. And the time? The time matters, too.

Well then: at night. No, it's important to be more... On the stroke of midnight, as a matter of fact. Clock-hands joined palms in respectful greeting as I came. Oh, spell it out, spell it out: at the precise instant of India's arrival at independence, I tumbled forth into the world. There were gasps. And, outside the window, fireworks and crowds. A few seconds later, my father broke his big toe; but his accident was a mere trifle when set beside what had befallen me in that benighted moment, because thanks to the occult tyrannies of those blandly saluting clocks I had been mysteriously handcuffed to history, my destinies indissolubly chained to those of my country. For the next three decades, there was to be no escape. Soothsayers had prophesied me, newspapers celebrated my arrival, politicos ratified my authenticity. I was left entirely without a say in the matter. I, Saleem Sinai, later variously called Snotnose, Stainface, Baldy, Sniffer, Buddha and even

Piece-of-the-Moon, had become heavily embroiled in Fate-at the best of times a dangerous sort of

involvement. And I couldn't even wipe my own nose at the time.

Now, however, time (having no further use for me) is running out. I will soon be thirty-one years

old. Perhaps. If my crumbling, over-used body permits. But I have no hope of saving my life, nor

can I count on having even a thousand nights and a night. I must work fast, faster than

Scheherazade, if I am to end up meaning – yes, meaning – something. I admit it: above all things, I

fear absurdity.

And there are so many stories to tell – too many, such an excess of intertwined lives, events,

miracles, places, rumours, so dense a commingling of the improbable and the mundane! I have

been a swallower of lives; and to know me, just the one of me, you'll have to swallow the lot as

well.

—Salman Rushdie, Midnight's Children

Note: Any extra information given in the question statements that are not included in the passage

should be considered false.

Sub questions

Question Number: 52

Correct Marks: 2

Question Label: Multiple Choice Question

This excerpt is written in the _____ voice.

Options:

A. **✓** First-person

B. * Second-person

C. * Third-person

D. * None of these

Question Number: 53

Question Label : Multiple Choice Question

What is the meaning of "prophesy"?

Options:

A. * To bless

B. **✓** To predict

C. * To gift something

D. * To celebrate

Question Number: 54

Correct Marks: 2

Question Label: Multiple Choice Question

In which of the following sentences is the expression "running out" NOT used correctly?

Options:

A. * Time is running out.

B. * I am running out of milk.

C. ✓ I'm going for a running out.

D. * We are running out of funds.

Question Number: 55

Correct Marks: 2

Question Label: Multiple Choice Question

Which of the following is the opposite of the word "absurdity"?

Options:

A. * Ridiculousness

B. ✓ Reasonableness

C. ***** Idiocy

D. * Foolishness

Question Number : 56

Question Label: Multiple Choice Question

Which of the following statements is true about the narrator and the protagonist?

Options:

A. * His name is Saleem, he was born at the precise instant of India's independence, and he is 17 years old at the time of speaking.

B. * Her name is Scherezade, she was born on April 15, and she is thirty years old at the time of speaking.

C. ✓ His name is Saleem, he was born on August 15, he is thirty years old at the time of speaking.

D. * His name is Saleem, he was born on August 15, 1947, and he is thirty-one years old at the time of speaking.

Question Number: 57

Correct Marks: 2

Question Label: Multiple Choice Question

Consider the following sentence and answer the questions below: "Thanks to the occult tyrannies of those blandly saluting clocks I had been mysteriously handcuffed to history, my destinies indissolubly chained to those of my country."

Which of the following options best summarises the above sentence?

Options:

A. Because of the mysterious workings of time, I was tied permanently to the history and destinies of my country.

B. * I was fated to serve my country because I was running out of time.

C. My destiny lay with the future of my country because soothsayers had predicted it would be so.

Question Number: 58

Correct Marks: 2

Question Label: Multiple Choice Question

What is the meaning of the word "occult"?

A. ✓ Supernatural
B. ★ Evil
C. ★ Illegal
D. ★ Malaise

Question Number: 59

Correct Marks: 2

Question Label: Multiple Choice Question

Which word among the following is the opposite of "Crumbling"?

Options:

- A. * Disintegrate
- B. * Collapse
- C. ✓ Develop
- D. * Fall down

Question Number: 60

Correct Marks: 2

Question Label: Multiple Choice Question

What is the meaning of the word "benighted"?

Options:

- A. * Adopting a kind attitude
- B. * Honoured with a knighthood
- C. ✓ Dark and ominous
- D. ***** Unintelligent

Question Number: 61

Correct Marks: 2

Question Label: Multiple Choice Question

Pick the odd one out from among the given options.

A. * Useless
B. * Dispensable
C. ✔ Invaluable
D. * Worthless
Question Number : 62
Correct Marks : 1
Question Label : Multiple Choice Question
'We love hiking' is a sentence where agreement is followed.
Options :
A. ✔ TRUE
B. * FALSE
Question Number : 63
Correct Marks : 1
Question Label : Multiple Choice Question
Choose the correct form of verb from the options given below.
India, as well as her neighbouring countries, under British rule before the Second World
War.
Options : A. ✓ Was
B. * Were
Question Number : 64
Correct Marks : 1
Question Label : Multiple Choice Question
Choose the correct form of verb from the options given below.

You ____ a dancer before you became a teacher.

Options: A. * Was B. V Were C. * Are **Question Number: 65 Correct Marks: 1** Question Label: Multiple Choice Question Two pairs of scissors _____ missing since morning. **Options:** A. * Has been B. ✓ Have been **Question Number: 66 Correct Marks: 1** Question Label: Multiple Choice Question My balcony _____ half a dozen plants. Options: A. ✓ Accommodates B. * Accommodate. **Question Number: 67 Correct Marks: 1** Question Label: Multiple Choice Question Imperative sentences are either commands or requests. **Options:** A. VTRUE B. * FALSE

Question Number: 68

Correct Marks: 1

Question Label: Multiple Choice Question

Context: An interviewer talks to an interviewee as they leave the room

'Shut the door on your way out'. This is a

Options:

A. V Command

B. * Request

Question Number: 69

Correct Marks: 1

Question Label: Multiple Choice Question

'Stop making noise' when spoken by a parent to a child is a

Options:

A. **V** Command

B. * Request

Question Number: 70

Correct Marks: 1

Question Label: Multiple Choice Question

Context: Manager to his staff.

'Collect your files and submit the report by 3 pm'. This is a

Options:

A. **V** Command

B. * Request

Question Number: 71

Correct Marks: 1

Question Label: Multiple Choice Question

English hassounds
Options:
A. * 20
B. * 24
C. * 30
D. 4 4
Question Number : 72
Correct Marks : 1
Question Label : Multiple Choice Question
Context: Conversation between members of a household.
'Appa, hasmilkman arrived?'
Options:
A. * A
B. * An
C. ✓ The
Question Number : 73
Correct Marks : 1
Question Label : Multiple Choice Question
Context: Conversation between members of a household.
'Laskhmi, could you go to the store and buyfew eggs?'
Options:
A. ✓ A
B. * An
C. * The

Correct Marks: 1 Question Label: Multiple Choice Question 'The water is boiling'. Here the subject is: **Options:** A. X Is B. **✓** The water C. * Boiling **Question Number: 75 Correct Marks: 1** Question Label : Multiple Choice Question 'This is a bag' is a sentence with no predicate. **Options:** A. * TRUE B. **V** FALSE **Question Number: 76 Correct Marks: 1** Question Label: Multiple Choice Question 'Firoz plays a lot of cricket'. Here, the predicate is: **Options:** A. * Firoz B. * Plays C. ✓ Plays a lot of cricket

Question Number: 77

Correct Marks: 1

Question Label: Multiple Choice Question

Rapid speech causes

A. * Distortions in sounds B. * Merging of sounds C. * Dropping of sounds D. ✓ All of these **Question Number: 78 Correct Marks: 1** Question Label: Multiple Choice Question 'My telephone number is 9848790004'. Which is the wrong way to read out the number? **Options:** A. * 98/48/79/00/04// B. * 984/879/000/4// C. * 9848/790/004// D. 9848790004// **Question Number: 79 Correct Marks: 1** Question Label: Multiple Choice Question A pause is generally given after the words 'so', 'but', and 'therefore' while speaking. **Options:** A. VTRUE

B. * FALSE

Options:

A. * TRUE

B. **✓** FALSE

Question Number: 80

Question Label: Multiple Choice Question

In order to have an impressive talk, one must have a lot of time to talk.

Correct Marks: 1

Question Label: Multiple Choice Question

An effective presentation is one that is appreciated by listeners, even if they do not agree with it.

Options:

A. V TRUE

B. * FALSE

Question Number: 82

Correct Marks: 1

Question Label: Multiple Choice Question

Syllables depend on the number of vowel sounds spoken, not written.

Options:

A. **✓** TRUE

B. * FALSE

Question Number: 83

Correct Marks: 1

Question Label: Multiple Choice Question

The minimum requirement for a syllable is

Options:

A. **✓** One vowel

B. * One consonant

Question Number:84

Correct Marks: 1

Question Label: Multiple Choice Question

The word 'write' has how many syllables?

A. 🗸 1

B. * 2

C. **3**

Question Numbers: (85 to 91)

Question Label: Comprehension

Listen to the audio and answer the given subquestions:



885_640653_0_1984128_hs1001qz2e2q34mq.mp3

Sub questions

Question Number: 85

Correct Marks: 1

Question Label: Multiple Choice Question

Choose the appropriate pause for the following sentence as given in the audio:

And second thing which has stayed with me which became my philosophy of life which made all the difference is hundred things happen in your life good or bad out of hundred ninety are your creation.

- A. And second thing which has stayed with me which became my philosophy of life/ which made all the difference/ is/ hundred things happen in your life/ good or bad/ out of hundred/ ninety are your creation//
- B. And second thing/ which has stayed with me which became/ my philosophy of life which made all the difference/ is hundred things happen in your life good/ or bad out of hundred ninety/ are your creation//
- C. * And second thing which has/ stayed with me which became my philosophy/ of life which made all/ the difference is hundred things happen/ in your life good or bad out of hundred/ ninety are your creation//

Correct Marks: 1

Question Label: Multiple Choice Question

Choose the appropriate pause for the following sentence as given in the audio:

My father defied his own grandfather almost to the point of disinheritance because he decided to educate all four of us.

Options:

A. * My father defied his own grandfather/ almost/ to the point of disinheritance because/ he decided to educate all four of us.//

B. ✓ My father defied his own grandfather/ almost to the point of disinheritance/ because he decided to educate all four of us.//

C. * My father/ defied his own grandfather almost/ to the point of disinheritance/ because he decided to educate/ all four of us.//

Question Number: 87

Correct Marks: 1

Question Label: Multiple Choice Question

Choose the appropriate pause for the following sentence as given in the audio:

They belonged to boys. They belonged to boys who would join business and inherit business from parents and girls would be dolled up to get married.

Options:

A. * They/ belonged to boys// They belonged to boys/ who would join/ business and inherit business/ from parents and girls/ would be dolled up to get married//

B. * They belonged to boys// They belonged to boys/ who would join business and/ inherit business from parents and girls would be/ dolled up to get married//

C. ✓ They belonged to boys// They belonged to boys who would join business/ and inherit business from parents/ and girls would be dolled up to get married//

Question Number: 88

Question Label: Multiple Choice Question How many syllables are there in the following word? Choose the correct answer. Creation **Options:** A. * 1 B. 🗱 2 C. 🗸 3 D. **3** 4 **Question Number: 89 Correct Marks: 1** Question Label: Multiple Choice Question How many syllables are there in the following word? Choose the correct answer. Philosophy **Options:** A. * 1 B. * 2 C. **3** D. 🗸 4 **Question Number: 90 Correct Marks: 1** Question Label: Multiple Choice Question How many syllables are there in the following word? Choose the correct answer. Grandfather **Options:** A. 🗸 3

B. * 1

C. * 2				
D. * 4				
Question Number : 91				
Correct Marks: 1 Question Label: Multiple Choice Question How many syllables are there in the following word? Choose the correct answer.				
			Education	
Options:				
A. * 2 B. * 4 C. * 3 D. * 1				
			S	Sem2 Maths2
			Number of Questions :	8
			Section Marks :	50
Question Number : 92				
Correct Marks : 0				
Question Label : Multiple Choice Question	on			
THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LE	VEL: SEMESTER 2: MATHEMATICS FOR DATA SCIENCE 2"			
ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS				
(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION REGISTERED BY YOU)	AT THE <u>TOP</u> FOR THE SUBJECTS			