



MATRIX OLYMPAD

CSR Initiative of Matrix Education, Sikar to motivate and reward young talent.

✓ Total Questions : 60

✓ Maximum Marks : 240

✓ Duration : 2 Hrs.

PAPER PATTERN

Part	(I) Physics	(II) Chemistry	(III) Biology	(IV) Mathematics	(V) Logical Reasoning & IQ
Number of Questions	7	6	7	30	10

Marking Scheme: +4 For Each Correct Answer (There is no negative for wrong answer)

Instructions :

1. This Booklet is your **Question Paper**. DO NOT **break seal** of Booklet until the invigilator instructs to do so.
2. The Answer Sheet is provided to you separately which is a machine readable Optical Response Sheet (ORS). You have to mark your answer in the ORS by darkening bubble, as per your answer choice, by using **Black /Blue** ball point pen only.
3. If you are found involved in **cheating** or disturbing others then your ORS will be cancelled.
4. Do not **damage** the ORS sheet in any manner. If ORS is damaged or not completed properly, your results will not be prepared.
5. If you have any **confusion** in filling-up ORS sheet, please **contact** your invigilator. Incomplete ORS will be not be evaluated.
6. You can take the question paper home once the ORS is submitted.











Answer Key and Video
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JEE ADVANCED TOPPERS

 With XII Mayank Soni	AIR 26 (Gen.)	 With XII Priyanshu Meel	AIR 154 (Gen.)	 With XII Nagendra Singh	AIR 220 (Gen.)	 With XII Mohit Modi	AIR 296 (Gen.)	 With XII Aman Nehra	AIR 356 (Gen.)	 With XII Himanshu Rewar	AIR 358 (Gen.)	 With XII Aarish	AIR 415 (Gen.)	 With XII Uttam Paharia	AIR 421 (Gen.)
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JEE MAIN TOPPERS

100 %tile  With XII Mayank Soni	AIR 34 (Gen.)	99.99 %tile  With 12 th 15 (OBC) Nagendra Singh	AIR 123 (Gen.)	99.97 %tile  With 12 th 55 (SC) Shailesh Saini	AIR 354 (Gen.)	99.98 %tile  With XII Mohit Modi	AIR 213 (Gen.)	99.97 %tile  With XII Aman Nehra	AIR 393 (Gen.)	99.97 %tile  With 12 th Satyam Sharma	AIR 426 (Gen.)	99.96 %tile  With XII Anupam Jakhar	AIR 478 (Gen.)	99.95 %tile  With XII Uttam Paharia	AIR 509 (Gen.)
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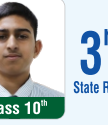
NEET (UG) Toppers

Marks- 680  Rekha Nitharwal	AIR 1665	Marks- 670  Narendra Farroda	AIR 2905	Marks- 667  Mahendra Yadav	AIR 3263	Marks- 666  Ankit Kumar Chahar	AIR 3378	Marks- 665  Deepika Soni	AIR 3545	Marks- 665  Lokesh Goyal	AIR 3621	Marks- 665  Mohit Haritwal	AIR 3661
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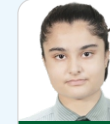






KVPY TOPPERS

 Manas Jajodia	AIR 6 (Gen.) Stream- SB	 Ishu	AIR 8 (Gen.) Stream- SB	 Lakshya	AIR 13 (Gen.) Stream- SB	 Akshay Choudhary	AIR 17 (Gen.) Stream- SB	 Chirag Indoria	AIR 37 (Gen.) Stream- SB
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STSE TOPPERS

 Class 12 th Aman Nehra	1 st State Rank	 Class 12 th Aman Nehra	2 nd State Rank	 Class 12 th Dinesh Kumar	2 nd State Rank	 Class 10 th Pranshu Bharia	2 nd State Rank	 Class 10 th Shrishti	2 nd State Rank	 Class 10 th Rohit Yadav	2 nd State Rank	 Class 10 th Dev Kumar	3 rd State Rank	 Class 10 th Mohd. Farhan	3 rd State Rank
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OUR BOARD TOPPERS

99.20%  Class 10 th Pinakin Choudhary	98.80%  Class 10 th Aradhya Raina	98.20%  Class 10 th Laxmi	98.00%  Class 10 th Vishal Choudhary	97.80%  Class 10 th Preksha Singh	97.80%  Class 12 th Piyush Sagatani	97.60%  Class 12 th Khushee Binwal	97.60%  Class 12 th Reena	97.60%  Class 12 th Siddhant Lalpuria	97.40%  Class 12 th Rohit Yadav
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NTSE TOPPERS

 Aditya Jhajhria	1 st State Rank	 Nayan Godara	1 st State Rank	 Aman Nehra	1 st State Rank	 Aaditya Pratap	2 nd State Rank	 Mayank Soni	2 nd State Rank	 Aditya Bijarniya	4 th State Rank	 Pragati	5 th State Rank
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Authenticity of result, promise of Matrix!

*cumulative result so far

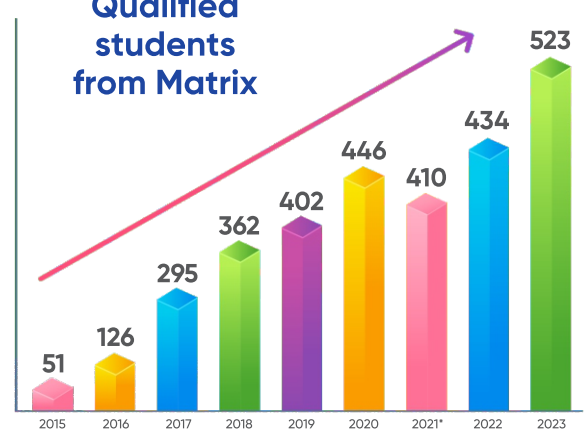
यह परिणाम मैट्रिक्स के केवल Yearlong classroom Program Students का ही है

Remarkable result growth in both JEE Main & Advanced on a consistent basis

JEE Main
Qualified
students from
Matrix



JEE Advanced
Qualified
students from
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Note : All results are from Matrix year long classroom program at Sikar only.

*due to covid

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HIGHLIGHTS at MATRIX

Total students
qualified in
JEE Main

6700+

students have been
qualified in JEE main
from matrix till date.

2500+

students have qualified
JEE Advanced
till date – Highest
in Sikar

2000+

final admissions
in various top IITs
over last 5 years –
Highest in Sikar

3500+

selection in NIT/IIITs
and other or other
Prestigious Universities
Highest in Sikar

2023 RESULT

Top score in
JEE Main 2023
Mayank Soni

Rank- **34**

Top scorer
JEE Advanced 2023
Mayank Soni

AIR- **26** (Gen)

200 Doctors
in very
1st year of
Matrix NEET
Division

All India Rank **6**
in KVPY 2021:
MANAS JAJODIA

55+ total selections
in KVPY over last
4 years **45+**

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Matrix has the largest
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results in all sort of
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examinations.

Matrix System has
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the highest
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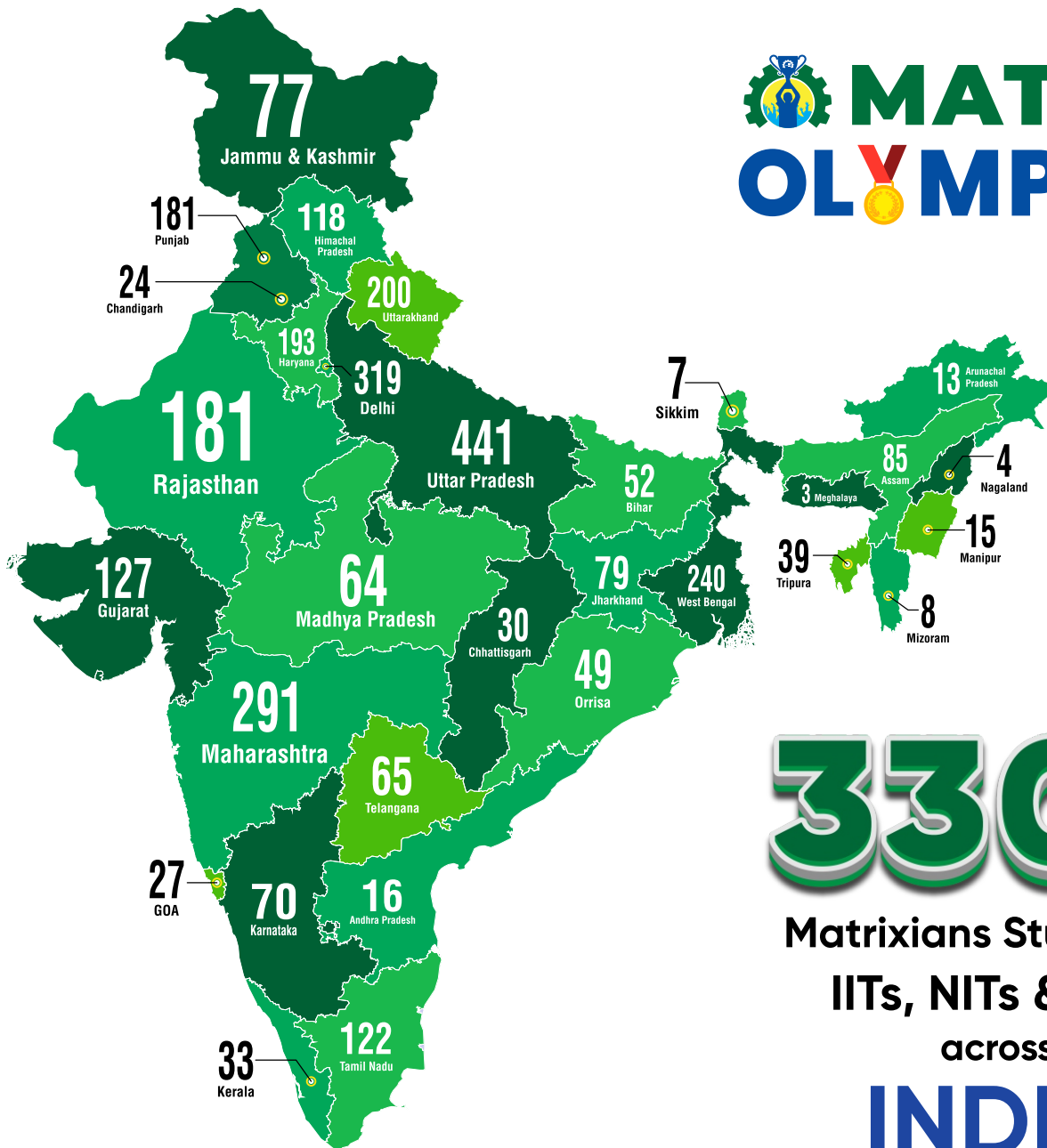
70 selections
in NDA 2023
April attempt!

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PART I : PHYSICS

This section contains **07 Multiple Choice Questions (Q : 01 to Q : 07)**. Each question has four choices **(A), (B), (C) and (D)** out of which **ONLY ONE** is correct.

1. Which of the following is a fundamental physical quantity?

- (A) Force
- (B) Speed
- (C) Amount of substance
- (D) Velocity

2. Which of the following is a non-luminous and natural light source?

- (A) The Sun
- (B) The planets
- (C) Volcanic eruptions
- (D) Lightning

3. A measuring scale is shown in figure below. What is the minimum length that can be measured using this scale once only?



- (A) 1 cm
- (B) 1 mm
- (C) 15 cm
- (D) 1 inch

4. Which of the following statement/s is/are **True(T)** or **False(F)** ?

- (i) The shape and size of a shadow doesn't depend on the shape and size of the object.
- (ii) In reflecting periscopes plane mirrors are placed at an angle of 45 degrees.
- (iii) A real image is formed by the real intersection of light rays.

Code :

(i) (ii) (iii)

- (A) T F F
- (B) F T T
- (C) F F T
- (D) F T F

5. Prefix micro is used for -

- (A) 10^{-4}
- (B) 10^{-6}
- (C) 10^{-9}
- (D) 10^{-3}

Space for rough work

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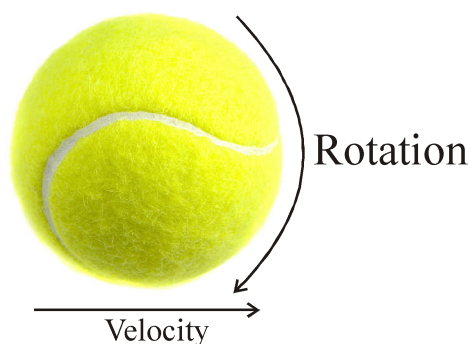
6. Match **Column – I** with **Column – II** and select the correct answer using the codes given below.

Column – I	Column – II
P. Virtual image	1. Pin hole camera
Q. Shadow	2. Plane mirror
R. Real image	3. Absence of light

Code :

	P	Q	R
(A)	2	3	1
(B)	3	1	2
(C)	1	3	2
(D)	3	2	1

7. One day Virat and Rohit were observing the ball coming towards them hit by a batsman. They saw that the ball is moving as shown in figure.



Based on the above diagram, the motion of the ball as observed by Virat and Rohit was _____ motion.

- (A) Periodic
- (B) Rotatory
- (C) Oscillatory
- (D) Vibratory

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Space for rough work

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PART II : CHEMISTRY

This section contains **06 Multiple Choice Questions (Q : 08 to Q : 13)**. Each question has four choices **(A), (B), (C) and (D)** out of which **ONLY ONE** is correct.

8. Which of the following statements is not true ?

- (A) A soft materials can be scratched easily.
- (B) Oil mixes with water
- (C) A soluble material disappears in water
- (D) Rubber is an insulator

9. You are provided with the following materials :

- (i) Dry wood
- (ii) Metallic sheet
- (iii) Rubber tube
- (iv) Iron nail

Which of the above materials will you classify as non-lustrous materials ?

- (A) (i) and (ii)
- (B) (ii) and (iii)
- (C) (i) and (iii)
- (D) (iii) and (iv)

10. Which of the following pair is an example of synthetic fibres :

- (A) Silk, Nylon
- (B) Polyester, Cotton
- (C) Polyester, Nylon
- (D) Nylon, Jute

11. Which of the following statement/s is/are **True(T)** or **False(F)** ?

- (i) Jute fibre is obtained from the fruit of jute plant.
- (ii) Silk fibre is drawn from the mulberry tree.
- (iii) The process of making fabric from a single yarn is called ginning.

Code :

(i) (ii) (iii)

- (A) T F F
- (B) T T T
- (C) F F T
- (D) F F F

12. Match **Column – I** with **Column – II** and select the correct answer using the codes given below.

Column – I	Column – II
P. Wool	1. Artificial silk
Q. Rayon	2. Vegetable fibre
R. Cotton	3. Give smell of burning hair

Code :

P Q R

- (A) 2 3 1
- (B) 3 2 1
- (C) 3 1 2
- (D) 2 1 3

Space for rough work

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13. Every day you come across a large number of things. Some of these things are living while others are non- living. All these do not have the same shape, size, colour, or utility. You use them according to your needs and their properties. We group things based on a certain property, similarity, dissimilarity or a particular use that they may have in common. Such grouping is called classification.

Which is a set of transparent and opaque materials ?

- (A) Glass and air
- (B) Water and glass
- (C) Water and charcoal
- (D) Wood and Iron

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Space for rough work

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PART III : BIOLOGY

This section contains **07 Multiple Choice Questions (Q : 14 to Q : 20)**. Each question has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.

14. Rearing and management of fishes on large scale is called_____.

- (A) Agriculture
- (B) Apiculture
- (C) Pisciculture
- (D) Horticulture

15. Which of the following is a source of both calcium and phosphorus?

- (A) Leafy vegetables
- (B) Sugar
- (C) Milk
- (D) Banana

16. All the deficiency diseases can be prevented by_____.

- (A) Cleanliness
- (B) Taking antibiotics
- (C) Vaccination
- (D) Taking balanced diet

17. Which of the following food items is rich in iron?

- (A) Spinach
- (B) Sea fish
- (C) Milk
- (D) All of these

18. Match **Column – I** with **Column – II** and select the correct answer using the codes given below.

Column – I	Column – II
P. Cereals	1. Mostly extracted from seeds
Q. Spices	2. Rice, Wheat, Maize, Barley
R. Oils	3. Add flavour to food

Code :

	P	Q	R
(A)	2	3	1
(B)	3	1	2
(C)	2	1	3
(D)	1	2	3

19. Which of the following statement/s is/are **True(T)** or **False(F)**?

- (i) Lion is omnivorous.
- (ii) Plants give us more varieties of food than animals.
- (iii) Cooked food can be easily consumed and absorbed by our body.

Space for rough work

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C06221023

Code :

(i) (ii) (iii)

(A) T F F

(B) T T T

(C) F F T

(D) F T T

20. Insectivorous means insect eating, these plants derive most of their nutrition from the insects.

Which of the following is an insectivorous plant ?



(i) Orchid



(ii) Venus flytrap



(iii) Pitcher plant



(iv) Water lily

(A) Only (ii)

(B) Only (i)

(C) (ii) and (iii)

(D) (iii) and (iv)

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Space for rough work

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PART IV : MATHEMATICS

This section contains 30 Multiple Choice Questions (Q : 21 to Q : 50). Each question has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.

21. Commas are inserted in a number after each _____.

- (A) Place
- (B) Period
- (C) Digit
- (D) None of these

22. 3,00,000 people visited a park in 200 days and same number of people visited the park every day. How many people visited the park in 1 day?

- (A) 15000
- (B) 150
- (C) 1500
- (D) 3000

23. What is the successor of 1 million ?

- (A) 200000
- (B) 1000001
- (C) 100001
- (D) 10001

24. What is the number name for 908000700 in Indian System ?

- (A) Ninety crore eight lakh and seven hundred
- (B) Nine crore eight lakh and seven hundred
- (C) Ninety crore eighty lakh and seven hundred
- (D) Ninety crore eight lakh and seven

25. Find the sum of the greatest and the least six digit numbers formed by the digits 2, 0, 4, 7, 6, 5 using each digit only once.

- (A) 996987
- (B) 969987
- (C) 999687
- (D) 969897

26. Fill in the blanks to make the statement true.

$$6245 + (631 + 751) = (631 + \text{_____}) + 751$$

- (A) 6245
- (B) 631
- (C) 7510
- (D) 2438

27. Find the product of the greatest 3 digit number and the greatest 2 digit number.

- (A) 98910
- (B) 98900
- (C) 98901
- (D) 99801

28. State the property associated with example $(2 \times 3) \times 4 = 2 \times (3 \times 4)$.

- (A) Commutativity property of addition
- (B) Associativity property of addition
- (C) Commutativity property of multiplication
- (D) Associativity property of multiplication

Space for rough work

C06221023 *****

C06221023

29. Number that is 1265 is divisible by :
- (A) 10
(B) 11
(C) 3
(D) 2
30. Three bells ringing together at intervals of 9, 12 and 15 minutes. If they start ringing together, after what time will they next ring together ?
- (A) 1 hours
(B) $1\frac{1}{2}$ hours
(C) $2\frac{1}{2}$ hours
(D) 3 hours
31. A number is divisible by 4 if the number formed by the digits in _____ place is divisible by 4.
- (A) Units and Tens
(B) Tens and Hundreds
(C) Units
(D) Units, Tens and Hundreds
32. Which of the following sets form co-prime number ?
- (A) (21, 42)
(B) (43, 129)
(C) (12, 7)
(D) (3, 9)

33. Which of the following is not found in the given figure ?



- (A) Point
(B) Ray
(C) Line
(D) Line segment
34. Two angles are said to be adjacent angle if they have _____.
- (A) A same vertex and a common arm.
(B) A same vertex, a common arm and the other two arms on the opposite sides of the common arm.
(C) Neither same vertex nor a common arm
(D) None of these
35. Which of the following is not a simple closed figure ?
- (A)
- (B)
- (C)
- (D)

Space for rough work

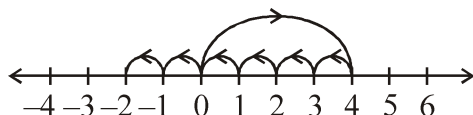
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36. How many diagonals and angles does a quadrilateral have ?

- (A) 2 diagonals, 3 angles
- (B) 4 diagonals, 2 angles
- (C) 2 diagonals, 2 angles
- (D) 2 diagonals, 4 angles

37. Which of the following represents the given number line ?



- (A) $4 + (-6)$
- (B) $4 - (-6)$
- (C) $-2 + (6)$
- (D) $(-2) - (-6)$

38. If 'm' and 'n' represent two integers other than zero, then the value of $|m| + |n|$:

- (A) Must be negative
- (B) Must be positive
- (C) Must be zero
- (D) May be 0

39. Which of the following statement is not true ?

- (A) When two non negative integers are added, we always get a positive integers.
- (B) When two non positive integers are added, we always get a negative integers.
- (C) When a positive integer and a negative integer is added we always get a negative integer.
- (D) Additive inverse of an integer 2 is (-2) and additive inverse of (-2) is 2.

40. The sum of a number 'n' and its negative number is :

- (A) n
- (B) $-n$
- (C) 0
- (D) 1

41. Which of the following statement/s is/are **True(T)** or **False(F)** ?

- (i) All even numbers are composite numbers.
- (ii) All prime numbers are odd numbers.
- (iii) The product of two even numbers is always even.

Code :

(i) (ii) (iii)

- (A) T F F
- (B) T T T
- (C) F F T
- (D) F T F

42. Which of the following statement/s is/are **True(T)** or **False(F)** ?

- (i) The opposite sides of a rectangle are equal in length.
- (ii) All opposite sides of a trapezium are parallel.
- (iii) All the sides of a rhombus are of equal length.

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Space for rough work

C06221023

Code :

(i) (ii) (iii)

- (A) T F F
(B) T T T
(C) T F T
(D) F T F

43. Which of the following statement/s is/are **True(T)** or **False(F)** ?

- (i) $(14 - 3) - 8 = 14 - (3 - 8)$
(ii) The smallest positive integer is 1.
(iii) When two negative integers are multiplied, the product is also negative.

Code :

(i) (ii) (iii)

- (A) T F F
(B) T T T
(C) F F T
(D) F T F

44. Match **Column – I** with **Column – II** and select the correct answer using the codes given below.

Column – I	Column – II
P. 50 minutes before flight time.	1. + 50
Q. A temperature drop by 20°C .	2. – 50
R. An increase of 50 point.	3. –20

- P. 50 minutes before flight time.
Q. A temperature drop by 20°C .
R. An increase of 50 point.

Code :

P Q R

- (A) 2 3 1
(B) 3 1 2
(C) 3 2 1
(D) 2 1 3

45. Match **Column – I** with **Column – II** and select the correct answer using the codes given below.

Column – I	Column – II
P. Sum of predecessor and successor of number 499999	1. 564049
Q. Successor of $439842 + 560158$	2. 1000001
R. Predecessor of $234568 + 329482$	3. 999998

- P. Sum of predecessor and successor of number 499999
Q. Successor of $439842 + 560158$
R. Predecessor of $234568 + 329482$

Code :

P Q R

- (A) 2 3 1
(B) 3 2 1
(C) 3 1 2
(D) 2 1 3

Space for rough work

C06221023

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46. Match **Column – I** (Hindu-Arabic numerals) with **Column – II** (Roman numerals) and select the correct answer using the codes given below.

Column – I	Column – II
P. 967	1. DXXXIV
Q. 534	2. CMLXVII
R. 385	3. CCCLXXXV

Code :

	P	Q	R
(A)	2	3	1
(B)	3	1	2
(C)	3	2	1
(D)	2	1	3

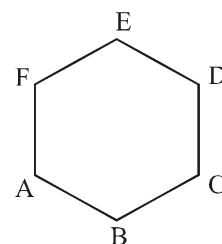
Paragraph for Questions 47 & 48

Mayank consumes each of mango juice cane priced at Rs. 50 and lichi juice cane priced at Rs. 60 everyday.

47. Money spent by Mayank on lichi juice in five days is :
- (A) Rs. 12
(B) Rs. 300
(C) Rs. 250
(D) Rs. 200
48. Total money spent by Mayank in 3 days is :
- (A) Rs. 300
(B) Rs. 320
(C) Rs. 330
(D) Rs. 150

Paragraph for Questions 49 & 50

A polygon is entirely made up of straight lines, only a hexagon ABCDEF is a six sided figure.



49. How many angles are there in the hexagon ?
- (A) 5
(B) 6
(C) 7
(D) 8
50. How many line segment are there in the hexagon ?
- (A) 5
(B) 6
(C) 7
(D) 8

Space for rough work

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PART V : LOGICAL REASONING & IQ

This section contains 10 Multiple Choice Questions (Q : 51 to Q : 60). Each question has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.

Direction (51 – 52) : Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.

51. 6, 11, 21, 36, 56, ?

- (A) 42
- (B) 51
- (C) 81
- (D) 91

52. 2, 15, 41, 80, ?

- (A) 111
- (B) 120
- (C) 121
- (D) 132

53. In the given question, various terms of an alphabet series are given with one term missing as shown by (?). Choose the missing term out of the given alternatives :

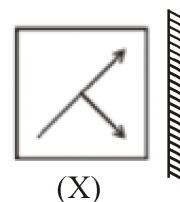
A, G, L, P, S, ?


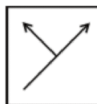
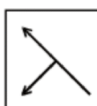
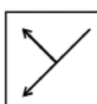
- (A) W
- (B) T
- (C) U
- (D) V

54. Rahul started walking straight towards East. He walks a certain distance and then turns his right and walks again. Find the direction he is walking now ?

- (A) North
- (B) East
- (C) West
- (D) South

55. Choose the correct mirror-image of the given figure (X) from amongst the four alternatives :



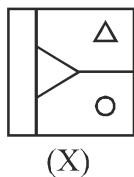
- (A) 
- (B) 
- (C) 
- (D) 

Space for rough work

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56. Choose the correct water-image of the given figure (X) from amongst the four alternatives :



- (A)
- (B)
- (C)
- (D)

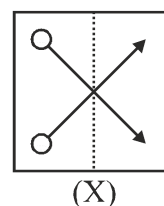
57. In a row, all the people are facing North. Rahul is 33rd place from the left end and in the right side of Rahul, there are only 16 people. Find out total number of people in this row ?
- (A) 51
(B) 48
(C) 49
(D) 50

58. Using BODMAS, what is the value of given expression :

$$100 \times 10 - 1000 + 1000 \div 100 - 10 = ?$$

- (A) 10
(B) 100
(C) 1
(D) 0

59. Find out from amongst the four alternatives as to how the pattern would appear when the transparent sheet is folded at the dotted line :



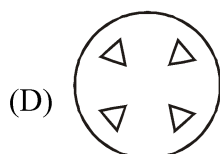
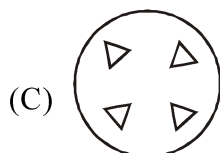
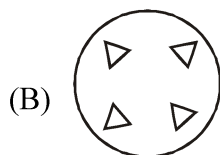
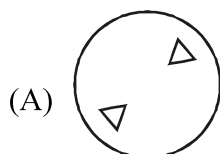
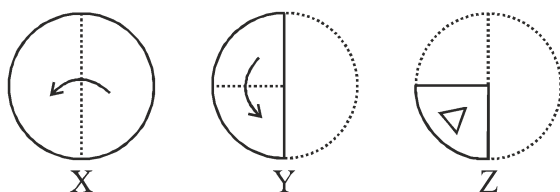
- (A)
- (B)
- (C)
- (D)

Space for rough work

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60. In this question consists of a set of three figures X, Y, and Z showing a sequence of folding of a piece of paper. Figure (Z) shows the manner in which the folded paper has been cut. These three figures are followed by four answer figures from which you have to choose a figure which would most closely resemble the unfolded form of figure (Z).



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