



# 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.








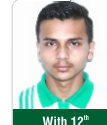


Answer Key and Video  
Solutions Kindly Scan  
QR Code and subscribe  
Matrix youtube channel

# MATRIX: Where producing outstanding results is a habit!



## JEE ADVANCED TOPPERS

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

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

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

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

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

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

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

\*cumulative result so far

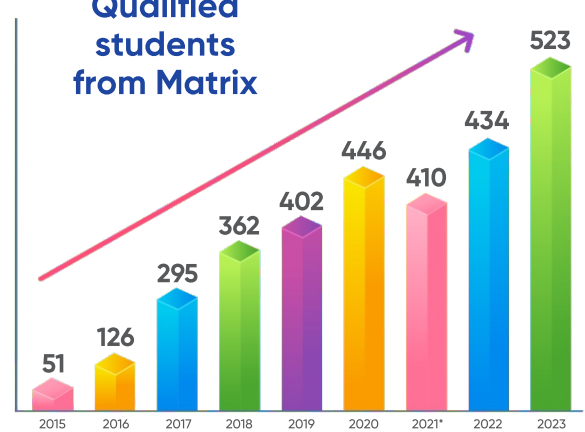
यह परिणाम मैट्रिक्स के केवल Yearlong classroom Program Students का ही है

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

## JEE Main Qualified students from Matrix



## JEE Advanced Qualified students from Matrix



Note : All results are from Matrix year long classroom program at Sikar only.

\*due to covid

"Authenticity of result, promise of Matrix"

## 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+**

More than  
**40,000**  
students have been  
beneficiary of  
**Matrix system**  
till date

Matrix has the largest  
pre-foundation career  
program in Sikar with  
highest number of  
enrolment and top  
results in all sort of  
competitive  
examinations.

Matrix System has  
produced one of  
the highest  
**NDA**  
selections in Sikar  
at a very early stage.

**70** selections  
in NDA 2023  
April attempt!

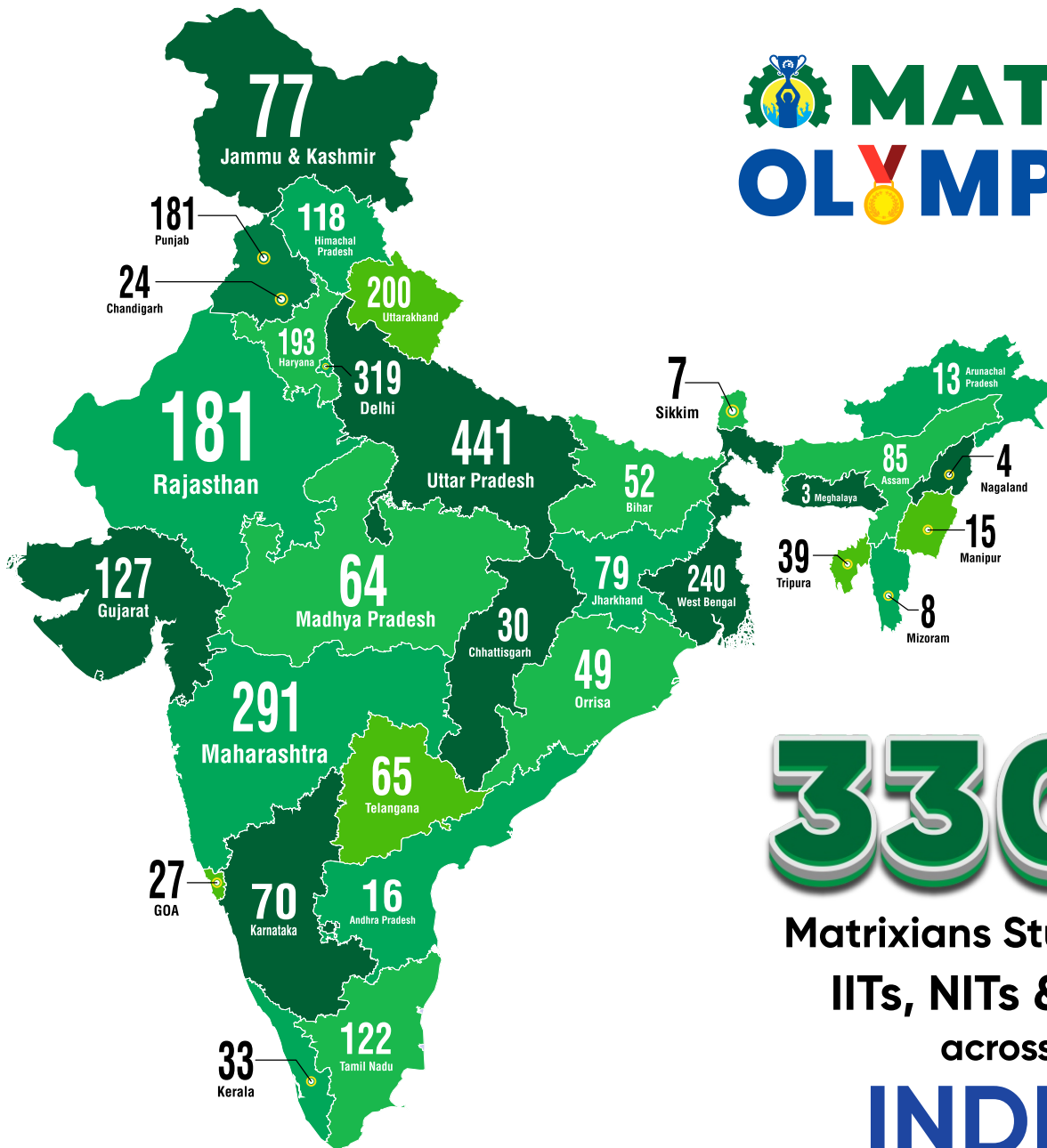
The Most  
**INNOVATIVE  
INSTITUTE** for  
**NEET, JEE &  
Pre-foundation**  
Covering & Serving

**5**  
Major State of  
the Country

Every student  
matters! Every  
student has  
potential!

Highest quality  
of management  
and student care  
for each student





# 3302

Matrixians Studied at  
IITs, NITs & IIITs  
across  
**INDIA**

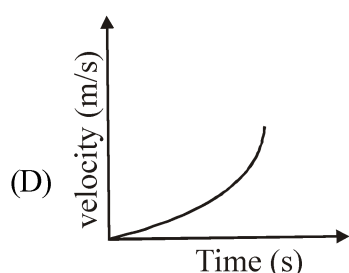
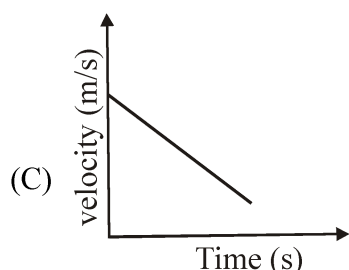
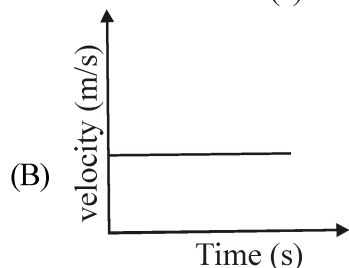
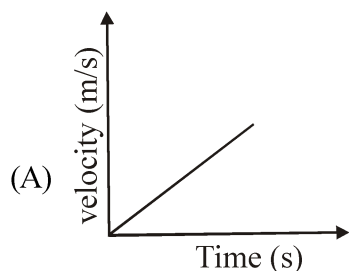




# PART I : PHYSICS

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. The displacement of a car is directly proportional to the square of time taken during the motion. Which of the following is a correct graph to represent the motion of the car?



2. The odometer of a bus reads 6700 km when it starts from the station at 9 a.m., and when it comes back to station at 10 p.m. the odometer reading is found to be 6960 km, then the average speed of the bus in the whole journey is :

- (A) 10 km/h  
(B) 20 km/h  
(C) 30 km/h  
(D) 40 km/h

3. Woolen clothes keep us warm during winter because -

- (A) Wool is poor conductor of heat  
(B) Wool is a good conductor of heat  
(C) Air trapped in between the fibres prevents the heat flow  
(D) Both (A) and (C)

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

- (i) Radiation is the fastest mode of heat transfer.  
(ii) Motion is the combined property of the object under study and the observer.  
(iii) Conduction and convection requires a material medium for heat transfer.

Space for rough work

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**Code :**

**(i) (ii) (iii)**

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

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

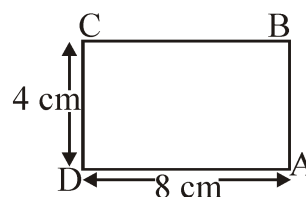
Column – I	Column – II
<b>P.</b> Evaporation	<b>1.</b> Gas to liquid
<b>Q.</b> Sublimation	<b>2.</b> Liquid to gas
<b>R.</b> Condensation	<b>3.</b> Solid to gas

**Code :**

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

6. Heat stops flowing from one body to another when both the bodies attain equal \_\_\_\_\_.  
(A) Masses  
(B) Densities  
(C) Temperatures  
(D) Volumes

7. An ant moves on a rectangular path as shown in figure. It starts from A and moves with uniform speed of 0.01 m/s.



The average speed of the ant after 1 hour will be -

- (A) 0.24 m/s  
(B) 0.36 m/s  
(C) 0.01 m/s  
(D) 0.12 m/s

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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. Silk is mainly composed of a protein called:

- (A) Cellulose
- (B) Lysine
- (C) Collagen
- (D) Fibroin

9. Cashmere wool is obtained from :

- (A) Angora rabbit
- (B) Merino wool sheep
- (C) Pashmina goat
- (D) Kohi camel

10. Coir fibre is extracted from the husk of \_\_\_\_\_ fruit.

- (A) Coconut
- (B) Banana
- (C) Pineapple
- (D) Mango

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

- (i) Tooth decay is caused due to the presence of base.
- (ii) Phenolphthalein gives pink colour in basic solution.
- (iii) Nitric acid is an Inorganic acid.

**Code :**

(i) (ii) (iii)

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

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

Column – I	Column – II
P. Sulphuric acid	1. Weak base
Q. Ammonium hydroxide	2. Strong acid
R. Acetic acid	3. Weak acid

**Code :**

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

*Space for rough work*

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13. The sting of an ant contains formic acid which causes pain and inflammation. To get relief from ant sting the acid is neutralised by basic solutions like sodium bicarbonate or zinc carbonate (calamine solution).

Which of the following substance is used to treatment of Ant sting ?

- (A) Baking soda
- (B) Sodium Chloride
- (C) Sulphuric Acid
- (D) Carbonic acid

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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. Which of the following systems is responsible for producing enzymes that aid in breakdown of substances that are to be absorbed for the body's growth and repair ?  
 (A) Respiratory system  
 (B) Digestive system  
 (C) Circulatory system  
 (D) Nervous system
15. Which body part of an elephant are modified form of teeth ?  
 (A) Legs  
 (B) Trunk  
 (C) Tusks  
 (D) Large ears
16. The process by which green plants prepare their own food is known as :  
 (A) Transpiration  
 (B) Photosynthesis  
 (C) Respiration  
 (D) None of these
17. Which statement is correct about the Villi ?  
 (A) It increases the surface area for absorption of food.  
 (B) It decreases the surface area for absorption of food.  
 (C) It protects the lining of small intestine.  
 (D) It protects the lining of stomach.

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18. Which of the following statement/s is/are **True(T)** or **False(F)** ?  
 (i) Breakdown of complex substance into simpler substance is not a peristalsis movement.  
 (ii) The process of passing of digestive food into blood vessels in the intestine is called peristalsis.  
 (iii) The process of utilization of glucose, amino acid is called peristalsis.

**Code :**

- | (i)   | (ii) | (iii) |
|-------|------|-------|
| (A) T | F    | F     |
| (B) F | T    | F     |
| (C) T | T    | F     |
| (D) F | F    | T     |

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

Column – I	Column – II
P. Rajasthan	1. Hot and Humid
Q. Polar Region	2. Hot and Dry
R. Tropical Rainforests	3. Coldest Region

*Space for rough work*

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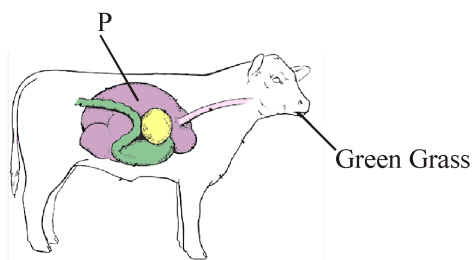
Code :

- |     | <i>P</i> | <i>Q</i> | <i>R</i> |
|-----|----------|----------|----------|
| (A) | 2        | 3        | 1        |
| (B) | 3        | 1        | 2        |
| (C) | 2        | 1        | 3        |
| (D) | 1        | 2        | 3        |

20. A ruminant is any herbivorous animal that has a stomach with four compartments : Rumen, Reticulum, Omasum and Abomasum.

Carefully observe picture given below and answer the following question. Green grass in the figure shows the digestive system of a grass eating animal.

The part 'P' shown in figure is called \_\_\_\_\_.



- (A) Rumen
- (B) Cud
- (C) Stomach
- (D) None of these

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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.

- |  |  |
|--|--|
| <p>21. One autumn morning, the temperature rose from <math>-2^{\circ}\text{C}</math> to <math>4^{\circ}\text{C}</math>. By how many degrees did the temperature rises ?</p> <p>(A) <math>5^{\circ}\text{C}</math><br/>(B) <math>6^{\circ}\text{C}</math><br/>(C) <math>7^{\circ}\text{C}</math><br/>(D) <math>2^{\circ}\text{C}</math></p> <p>22. Solve : <math>\left(\frac{0.02}{0.002} + \frac{0.02}{2}\right)</math></p> <p>(A) 10.001<br/>(B) 0.1001<br/>(C) 10.01<br/>(D) 10.001</p> <p>23. Simplify : <math>3\frac{1}{12} - \left[1\frac{3}{4} + \left\{2\frac{1}{2} - \left(1\frac{1}{2} - \frac{1}{3}\right)\right\}\right]</math></p> <p>(A) 0.5<br/>(B) 2<br/>(C) 1<br/>(D) 0</p> <p>24. If <math>M = 9</math> and <math>N = \frac{33}{5} \times \frac{15}{11}</math>, then find the value of <math>\frac{M}{N}</math>.</p> <p>(A) 1<br/>(B) 9<br/>(C) 3<br/>(D) 6</p> | <p>25. Convert the decimal number 56.432 into a fraction.</p> <p>(A) <math>\frac{7014}{120}</math><br/>(B) <math>\frac{56432}{10}</math><br/>(C) <math>\frac{7054}{125}</math><br/>(D) <math>\frac{56432}{10000}</math></p> <p>26. The average monthly income of a four members of the family is Rs. 610.25. After the marriage of one girl the average income of the family becomes Rs. 650.75, then the salary of the married girl is :</p> <p>(A) Rs. 488.25<br/>(B) Rs. 488.75<br/>(C) Rs. 479.75<br/>(D) Rs. 489.25</p> <p>27. The average of three numbers is 77. The first number is twice the second and the second number is twice the third. The first number is :</p> <p>(A) 33<br/>(B) 66<br/>(C) 77<br/>(D) 132</p> |
|--|--|

Space for rough work

28. Mr. Sharma is three times as old as his daughter. After five years, the sum of their ages will be 62 years.

Find the present age of his daughter.

- (A) 15 years  
(B) 12 years  
(C) 13 years  
(D) 14 years

29. The following are the steps involved in finding the positive value of  $x$  from the equation  $x^2 = 23.04$ . Arrange the following steps in a sequential order.

(i)  $x^2 = \frac{(48)^2}{(10)^2}$

(ii)  $x = 4.8$

(iii)  $x^2 = 23.04 = \frac{2304}{100}$

(iv)  $x = \frac{48}{10}$

- (A) (iii)  $\rightarrow$  (iv)  $\rightarrow$  (i)  $\rightarrow$  (ii)  
(B) (iii)  $\rightarrow$  (i)  $\rightarrow$  (ii)  $\rightarrow$  (iv)  
(C) (iii)  $\rightarrow$  (i)  $\rightarrow$  (iv)  $\rightarrow$  (ii)  
(D) (iii)  $\rightarrow$  (iv)  $\rightarrow$  (ii)  $\rightarrow$  (i)

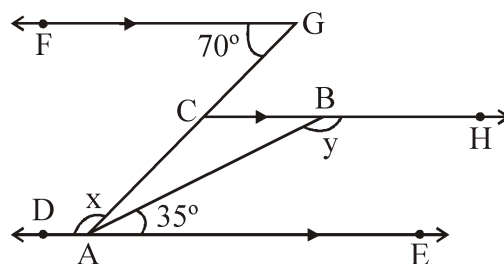
30. The statement form of the equation  $\frac{b}{5} - 3 = 0$  is given by:

- (A) Taking away 5 from three times a number  $b$  gives 0.  
(B) Taking away 3 from one-fifth of a number  $b$  gives 0.  
(C) Five times of a number  $b$  is 3.  
(D) Sum of one-fifth of a number  $b$  and 3 is 0.

31. Solve :  $2x - 3 = \frac{3}{10}(5x - 12)$

- (A)  $-\frac{6}{5}$   
(B)  $\frac{4}{5}$   
(C)  $\frac{8}{9}$   
(D)  $\frac{16}{9}$

32. In the given figure (not drawn to scale), DAE, CBH and ACG are straight lines,  $DE \parallel CH \parallel FG$ . Find  $x$  and  $y$  respectively.



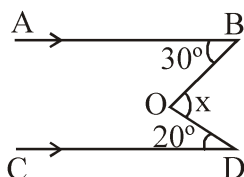
- (A)  $70^\circ, 35^\circ$   
(B)  $110^\circ, 145^\circ$   
(C)  $110^\circ, 35^\circ$   
(D)  $140^\circ, 20^\circ$

Space for rough work

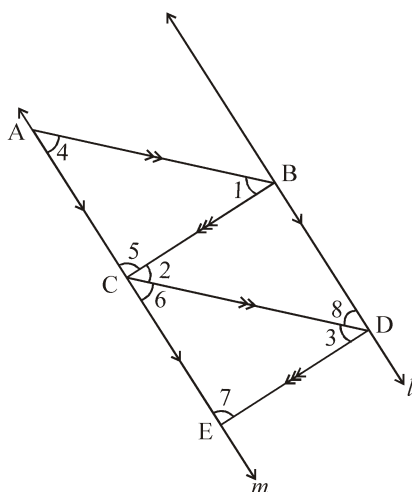
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33. In the following figure if  $AB \parallel CD$ , then find the value of  $x$ .

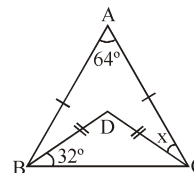


- (A)  $30^\circ$   
(B)  $20^\circ$   
(C)  $10^\circ$   
(D)  $50^\circ$
34. A number is multiplied by 6 and 12 is added to the product, the the result is 84. What is the original number ?
- (A) -12  
(B) 72  
(C) +12  
(D) -72
35. In the following figure, if line  $l \parallel m$ ,  $AB \parallel CD$  and  $BC \parallel DE$ , then choose the incorrect option.

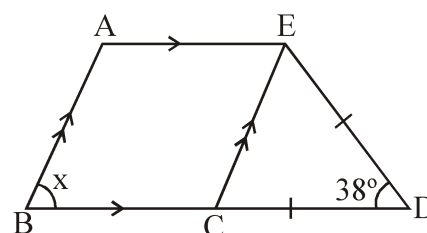


- (A)  $\angle 1 = \angle 3$   
(B)  $\angle 2 + \angle 5 + \angle 6 = 180^\circ$   
(C)  $\angle 8 = \angle 6$   
(D)  $\angle 1 + \angle 4 + \angle 5 = 360^\circ$

36. Find the unknown angle  $x$  in the given figure.



- (A)  $30^\circ$   
(B)  $26^\circ$   
(C)  $52^\circ$   
(D)  $32^\circ$
37. In the given figure (not drawn to scale), if  $ABCE$  is a parallelogram and  $BCD$  is a straight line, then find the value of  $x$ .



- (A)  $71^\circ$   
(B)  $109^\circ$   
(C)  $80^\circ$   
(D)  $90^\circ$

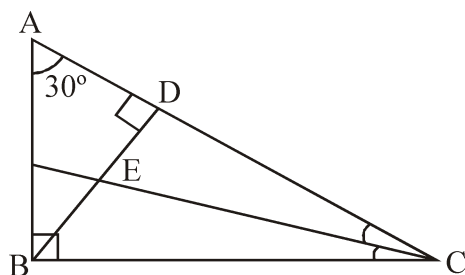
Space for rough work

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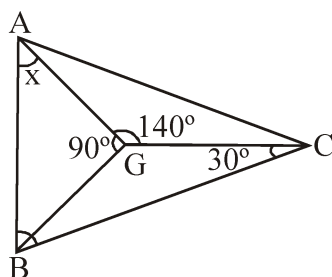
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38. In the given figure,  $AB \perp BC$ ,  $BD \perp AC$  and  $CE$  bisects  $\angle C$  if  $\angle A = 30^\circ$ , then what is the measure of  $\angle CED$  ?

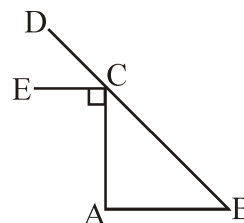


- (A)  $30^\circ$   
(B)  $60^\circ$   
(C)  $45^\circ$   
(D)  $65^\circ$
39. In the given figure, if  $\angle ABC = 60^\circ$ , then find  $x$ .



- (A)  $50^\circ$   
(B)  $60^\circ$   
(C)  $40^\circ$   
(D)  $30^\circ$

40. In the given figure,  $ABC$  is a triangle in which  $BC$  is produced to  $D$ . If  $\angle A : \angle B : \angle C = 3 : 2 : 1$  and  $AC \perp CE$ , then find  $\angle ECD$ .



- (A)  $30^\circ$   
(B)  $45^\circ$   
(C)  $60^\circ$   
(D)  $72^\circ$

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

- (i)  $-5$  is less than  $0$ .  
(ii)  $-3$  lies between  $-4$  and  $4$ .  
(iii) Multiplicative inverse of  $-1$  is a positive number.

**Code :**

- |     | (i) | (ii) | (iii) |
|-----|-----|------|-------|
| (A) | T   | F    | F     |
| (B) | T   | T    | F     |
| (C) | F   | F    | T     |
| (D) | F   | T    | F     |

Space for rough work

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

- (i) Fractions which look different but have the same value are called equivalent fraction.
- (ii) Fractions that have one as its numerator is called unit fraction.
- (iii) Fractions that have equal denominator are called like fraction.

**Code :**

(i) (ii) (iii)

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

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

- (i) The mean of the first five multiples of 2 is 6.
- (ii) The mode of the data set 4, 8, 4, 11, 4, 12, 8 is 4.
- (iii) If there are 19 values in a data set arranged in descending order, then the median is the 5th term.

**Code :**

(i) (ii) (iii)

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

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

Column – I	Column – II
------------	-------------

P.  $3x - 2 = 46$ , then the value x is      1. 8

Q.  $\frac{20x}{3} = 40$ , then the value x is      2. 6

R.  $2x + \frac{5}{2} = \frac{37}{2}$ , then the value x is      3. 16

**Code :**

P Q R

- (A) 3 2 1
- (B) 1 2 3
- (C) 3 1 2
- (D) 2 4 1

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

Column – I	Column – II
------------	-------------

P.  $a \div (-1)$       1. a

Q.  $(-a) \div (-a)$       2. 1

R.  $a \div (+1)$       3. -a

**Code :**

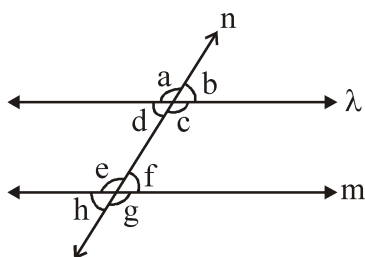
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	<i>P</i>	<i>Q</i>	<i>R</i>
(A)	3	1	2
(B)	3	2	1
(C)	1	2	3
(D)	1	3	2

46. Match **Column – I** with **Column – II** with the help of the figure in which line  $\lambda \parallel m$  and  $n$  is a transversal line and select the correct answer using the codes given below.



Column – I	Column – II
P. Vertically opposite angle of $\angle g$	1. $\angle g$
Q. Adjacent angle of $\angle g$	2. $\angle h$
R. Corresponding angle of $\angle c$	3. $\angle e$

Code :

	<i>P</i>	<i>Q</i>	<i>R</i>
(A)	2	3	1
(B)	3	1	2
(C)	3	2	1
(D)	1	2	3

### Paragraph for Questions 47 & 48

Integers can be represented on the number line. On a number line the positive numbers are to the right of zero and the negative numbers are to the left of zero.

Let's look into the representation of integers on a number line in the diagram as shown below :



47. Using the above number line which point represent  $-4 \times 3$  ?
- (A) E  
(B) F  
(C) D  
(D) A
48. Using the above number line find the value of  $(E \times 2) + H$ .
- (A) -20  
(B) 24  
(C) -24  
(D) 20

Space for rough work

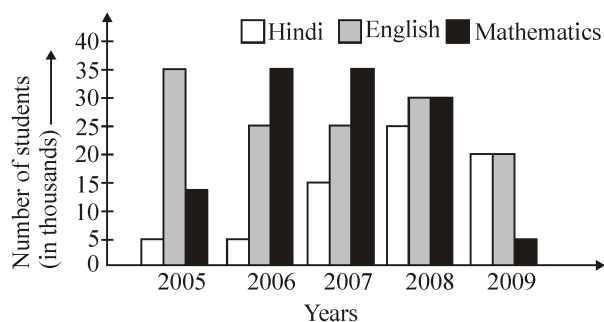
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**Paragraph for Questions 49 & 50**

The given bar graph shows the number of students (in thousands) who opted for three different specializations during the given five years in a university. Study the graph carefully and answer the following questions.



49. Out of the total number of students who opted for the given three subjects in the year 2009, 38% were girls. How many boys opted for the given three subjects in the same year ?
- (A) 1322  
(B) 1332  
(C) 27900  
(D) 27800
50. What is the average number of students who opted for mathematics in all the given years together ?
- (A) 24000  
(B) 18000  
(C) 15000  
(D) 80000

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*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.

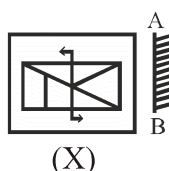
51. 25, 49, 121, 169, ?

- (A) 289
- (B) 225
- (C) 290
- (D) 236

52. QUESTION, UESTION, UESTIO, ESTIO, ?

- (A) ESTO
- (B) SITO
- (C) ESTI
- (D) TOSI

53. Find the mirror image of the given figure(X) :



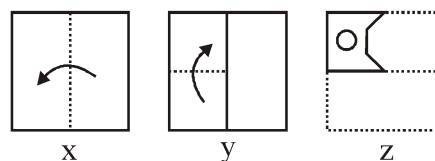
- (A)
- (B)

- (C)
- (D)

54. The age of five sisters Sita, Gita, Babita, Lalita and Anita are compared. Gita is older than Babita but younger than Sita. Lalita is eldest and Babita is not the youngest. Who is the second eldest sister ?

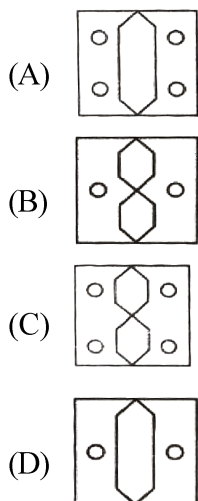
- (A) Babita
- (B) Anita
- (C) Sita
- (D) Gita

55. The sequence of folding a piece of paper and the manner in which the folded paper has been cut in shown in the following question figures. How would this paper look (in the respective options) when unfolded ?

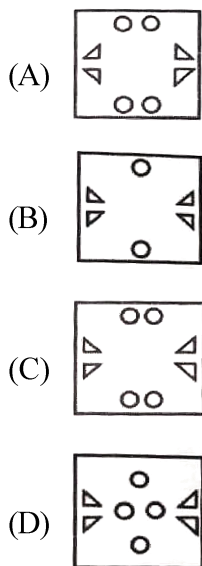
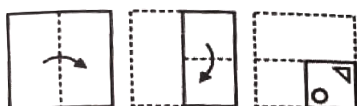


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56. The sequence of folding a piece of paper and the manner in which the folded paper has been cut in shown in the following question figures. How would this paper look (in the respective options) when unfolded ?



57. If A denotes '+', B denotes '×', C denotes '−' and D denotes '÷', then what will be the value of the following expression ?

$$50 A 86 C 40 D 10 B 5 = ?$$

- (A) 124  
(B) 150  
(C) 116  
(D) 134

58. Which two numbers should be interchanged to make the given equation correct ?

$$72 + 63 \div 9 \times 5 - 36 = 67$$

- (A) 63 and 36  
(B) 63 and 72  
(C) 5 and 36  
(D) 72 and 36

59. Rohan is facing West and he turns  $45^\circ$  clockwise, again  $180^\circ$  anticlockwise and then turns  $225^\circ$  anticlockwise. In which direction is he facing now ?

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

Space for rough work

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60. Mayank start walking in North direction and walks 18 km. Then he turns right and walks 28 km. Then he turns right and walks 35 km. Then he turns left and walks 12 km. He then turns left and walks 17 km. In which direction and how many distance is he from the original position ?

- (A) 20 km North
- (B) 17 km South
- (C) 30 km West
- (D) 40 km East

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*Space for rough work*

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