MATRIX OLYMPIAD

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) Maths	(II) Science	(III) Logical Reasoning & IQ
Number of Questions	30	20	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.

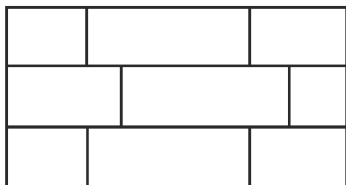6. You can take the question paper home once the ORS is submitted.

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

PART I : MATHEMATICS

*This section contains **30 Multiple Choice Questions (Q : 01 to Q : 30)**. Each question has four choices **(A), (B), (C) and (D)** out of which **ONLY ONE** is correct.*

1. Identify different types of lines that can be found in the figure given below ?

    (A) Parallel Lines

    (B) Perpendicular Lines

    (C) Both (A) and (B)

    (D) None of these

2. Which of the following angle will have highest degree of measurment ?

    (A) Straight angle

    (B) Right angle

    (C) Obtuse angle

    (D) Acute angle

3. How would you represent this line ?

    (A) $\overrightarrow{AB}$

    (B) $\overleftrightarrow{AB}$

    (C) AB

    (D) $\overline{AB}$

4. Rohit is holding his leg at a 74° angle. He moves his leg to make the angle bigger by 23°. What type of angle is Rohit's leg forming now ?

    (A) Right angle

    (B) Acute angle

    (C) Obtuse angle

    (D) None of these

5. Find the sum of 5, 15 and 25 and divide the result by 9.

    (A) 9

    (B) 7

    (C) 5

    (D) 20

6. Pooja had a total of Rs 345 in her hand bag. She spent Rs 121 to purchase a pair of bangles. She also purchased a scarf with the remaining amount. Find the cost of the scarf.

    (A) Rs 466

    (B) Rs 373

    (C) Rs 220

    (D) Rs 224

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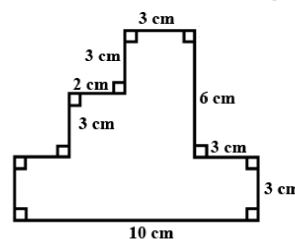
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7. Which of the following is true ?

(A) $1248 \div 24 = 52$

(B) $9992 \div 41 = 274$

(C) $2344 \div 21 = 110$

(D) $642 \div 24 = 24$

8. Suresh bought 25 boxes of tiles. If each box had 110 tiles. How many tiles were there in total ?

(A) 2740

(B) 2650

(C) 2750

(D) 2560

9. Which of the following represents the prime factorisation of 80 ?

(A) $2 \times 2 \times 4 \times 5$

(B) $2 \times 2 \times 2 \times 2 \times 5$

(C) $2 \times 2 \times 2 \times 3 \times 5$

(D) $2 \times 3 \times 3 \times 4 \times 5$

10. Which number is a multiple of 19 ?

(A) 360

(B) 305

(C) 437

(D) 381

11. Which of the following statement is correct ?

(A) Prime numbers do not have any factors.

(B) The product of two odd numbers is always even.

(C) The sum of three odd numbers is even.

(D) The product of two even numbers is always even.

12. The greatest number of four digits which is exactly divisible by 15, 25, 40 and 75 is :

(A) 9000

(B) 9400

(C) 9600

(D) 9800

13. The _____ is equal to 2 times the length plus twice the width.

(A) Area of a rectangle

(B) Perimeter of a square

(C) Perimeter of a rectangle

(D) Area of a square

14. The perimeter of the following figure is :

(A) 38 cm

(B) 36 cm

(C) 40 cm

(D) 44 cm

15. If the perimeter of a square garden is 16 km, then the area of this garden will be:

(A) 42 km^2

(B) 16 km^2

(C) 32 km^2

(D) 64 km^2

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16. The length of a room is 55 m and width is 375 m. Find the area of the floor.

(A) 20635 m^2

(B) 20365 m^2

(C) 20225 m^2

(D) 20625 m^2

17. Volume of a cuboid :

(A) length × width

(B) width × height

(C) length × width × height

(D) None of these

18. Find the number of cubical boxes of cubical side 3 cm. Which can be accomodated in carton of dimensions 15 cm × 9 cm × 12 cm ?
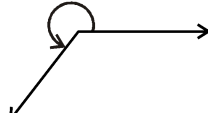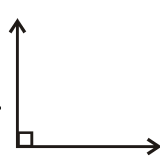
(A) 60

(B) 70

(C) 80

(D) 36

19. Which of the following describe the unit of volume ?

(A) m^2

(B) m^3

(C) Both (A) and (B)

(D) None of these

20. The volume of a cuboid is 100 cm^3 and the area of its base is 20 cm^2. What is the height of cuboid ?

(A) 5 cm

(B) 5 cm^2

(C) 5 cm^3

(D) None of these

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

Column – I	Column – II
P.	1. Obtuse angle
Q.	2. Right angle
R.	3. Reflex angle

Code :

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

Space for rough work

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

Column – I	Column – II
P. The LCM of 12 and 18	**1.** 36
Q. Multiple of 29	**2.** 261
R. The HCF of 26 and 91	**3.** 13

Code :

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

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

Column – I	Column – II
P. 92÷2+4×3−8×2+3	**1.** 98
Q. 94−24÷12×4+12	**2.** 97
R. (48−2)×4÷2+5×1	**3.** 45

Code :

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

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

(i) The HCF of 10, 13 and 18 is 1.

(ii) The LCM of 3,4 and 5 is 20.

(iii) 918573 can be divisible by 3.

	(i)	*(ii)*	*(iii)*
(A)	T	F	F
(B)	F	T	F
(C)	T	T	F
(D)	T	F	T

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

(i) Without using the graph paper, we can find the area of a rectangle if measurement of sides are given.

(ii) Perimeter of a square whose side is 4 cm is 16 cm^2.

(iii) Distance covered along the boundary of a closed figure is called its area.

	(i)	*(ii)*	*(iii)*
(A)	F	T	F
(B)	T	F	F
(C)	T	T	F
(D)	F	T	T

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

(i) A line segment has two end points.

(ii) Ray has only one end or fixed point.

(iii) Length of a line can be measured.

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

Paragraph for Questions 27 & 28

Captain is building a rectangular box for his pet rabbit. The length and breadth of a rectangular box is 24 m and 12 m respectively.

27. Find the area of rectangular box.

(A) $288m^2$

(B) $226m^2$

(C) $220m^2$

(D) $218m^2$

28. Find the perimeter of rectangular box.

(A) 36 m

(B) 72 m

(C) 27 m

(D) 12 m

Paragraph for Questions 29 & 30

The prime factor of the number 48 is $2 \times 2 \times 2 \times 2 \times 3$ and prime factor of number 52 is $2 \times 2 \times 13$. The lowest common multiple will be the product of all prime factors with the highest degree (power). The highest common factor will be the common prime factors with the lowest degree (power).

29. LCM of the 48 and 52 is :

(A) 625

(B) 624

(C) 426

(D) 627

30. HCF of the number 48 and 52 is :

(A) 12

(B) 6

(C) 4

(D) 8

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PART II : SCIENCE

*This section contains **20 Multiple Choice Questions (Q : 31 to Q : 50)**. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.*

31. Which of these animals are cold blooded animals ?

(A) Lizards

(B) Lions

(C) Birds

(D) Bears

32. Some animals become most active at sunrise and at sunset, they are known as :

(A) Diurnal animals

(B) Nocturnal animals

(C) Crepuscular

(D) None of these

33. Invertebrates include-

(A) Fish

(B) Frog

(C) Insects

(D) Reptiles

34. Which statement is false ?

(A) Insects and flies spread diseases.

(B) Wide nasal passage and flat ribcage help cheetahs to breath easily while running.

(C) Insects have four legs and antennae.

(D) The body of insects in divided into three parts - head, thorax abdomen.

35. _____ is a survival strategy through which some animal species conserve energy during extreme weather conditions. (Specially during winters)

(A) Migration

(B) Hibernation

(C) Aestivation

(D) None of these

36. A seed has a young baby plant inside it called as _____.

(A) Embryo

(B) Zygote

(C) Endosperm

(D) Micropyle

37. Example of monocotyledons is :

(A) Rice

(B) Pea

(C) Rajma seed

(D) Gram seed

38. A hole through which water enters during germination of seed is called as :

(A) Endosperm

(B) Micropyle

(C) Seed coat

(D) Plumule

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39. Incubation period of chicken egg is :

(A) 5 days

(B) 21 days

(C) 42 days

(D) 2 days

40. Animals reproduce through the part of their body by -

(A) Budding

(B) Fragmentation

(C) Both (A) and (B)

(D) None of these

41. Solids change into liquids by increase in temperature or decrease in pressure. It is also known as-

(A) Evaporation

(B) Melting

(C) Condensation

(D) Deposition

42. What is added to drinking water to kill germs present in it ?

(A) Chlorine tablet

(B) Sodium tablet

(C) Iron tablet

(D) All of these

43. In which process evaporation is followed by condensation ?

(A) Decantation

(B) Distillation

(C) Filtration

(D) Sedimentation

44. Soluble impurities from water can be removed by -

(A) Evaporation

(B) Distillation

(C) Both (A) and (B)

(D) None of these

45. We can help to conserve water by practicing-

(A) Reduce

(B) Reuse

(C) Recycle

(D) All of these

46. The energy that we get from the sun is called-

(A) Light energy

(B) Solar energy

(C) Chemical energy

(D) Wind energy

47. Relation between joule (J) or kilo joule (kJ) is :

(A) 1 kJ = 1000 J

(B) 1 kJ = 100 J

(C) 1 kJ = 10 J

(D) 1 kJ = 10000 J

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48. Plants make food by photosynthesis, this food releases :

(A) Light energy

(B) Solar energy

(C) Electrical energy

(D) Chemical energy

49. All living organisms need _____ to carry out different life processes.

(A) Milk

(B) Curd

(C) Rice

(D) Energy

50. The energy - giving food mainly contains -

(A) Proteins

(B) Carbohydrates

(C) Vitamins

(D) Oil

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"Be passionate and bold. Always keep learning. You stop doing useful things if you don't learn." Page No. : 8

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PART III : 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.*

51. Look at this series : 201, 202, 204, 207. What number should come next ?
   (A) 210
   (B) 208
   (C) 212
   (D) 211

52. Look at this series : 2, 6, 18, 54. What number should come next ?
   (A) 108
   (B) 148
   (C) 162
   (D) 216

53. Look at this series : J14, L16, _,P20, R22. What number should fill the blank ?
   (A) S24
   (B) N18
   (C) M18
   (D) T24

54. Rahul started walking straight towards East direction. He walks a certain distance and then he turns his right and walks again. Find the direction he is walking now :
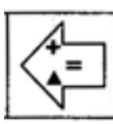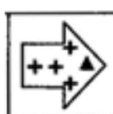   (A) North
   (B) East
   (C) South
   (D) West

55. Pinky walks towards North from a certain point P, after walking some distance she takes left turn, walks a certain distance and again turns left. Now towards which direction does she look ?
   (A) East
   (B) West
   (C) North
   (D) South

56. Choose the one from the alternatives which most closely resembles the mirror - image :

(A)

(B)

(C)

(D)

Space for rough work

57. Choose the one from the alternatives which most closely resembles the water reflection of the image given below :

(A)

(B)

(C)

(D)

58. Sugan ranks 16th place from the top and 49th place from the bottom in a class. How many students are there in the class ?
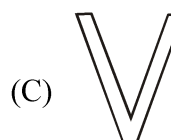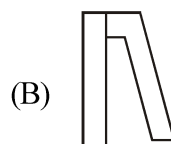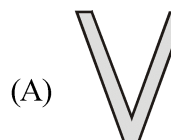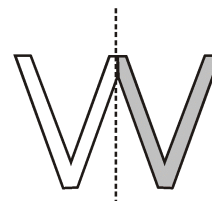
(A) 54

(B) 64

(C) 65

(D) 66

59. Using the BODMAS rule, calculate :

$7 + 6 \times (12 - 7) = ?$

(A) 65

(B) 72

(C) 37

(D) 149

60. Find out 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)

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