

PART I : PHYSICS

This section contains **10 Single Choice Questions (Q : 01 to Q : 10)**. Each question has four choices **(A), (B), (C) and (D)** out of which **ONLY ONE** is correct.

- If the Earth's magnetic field suddenly disappeared, which of the following would be affected the most?
 (A) Weight of objects
 (B) Direction shown by compass
 (C) Shape of magnets
 (D) Attraction between poles of magnet
- If a magnet is suspended freely and it points East-West, what can you conclude?
 (A) It is a very strong magnet
 (B) It is repelling Earth's magnetic field
 (C) It has lost its magnetism
 (D) It is being affected by another nearby magnet
- Match **Column - I** with **Column - II** and select the correct answer using the codes given below.

Column - I

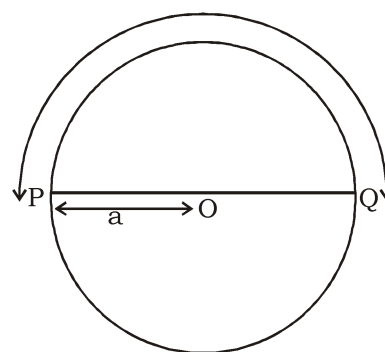
Column - II

- | | |
|-------------------------------------|-----------------------------------|
| P. Train speeding up | 1. Accelerated motion |
| Q. Swinging pendulum | 2. Oscillatory motion |
| R. Fan at constant speed | 3. Uniform circular motion |
| S. Walking in a zig-zag path | 4. Non-uniform motion |

Code :

- | | P | Q | R | S |
|-----|----------|----------|----------|----------|
| (A) | 1 | 2 | 3 | 4 |
| (B) | 4 | 3 | 2 | 1 |
| (C) | 3 | 1 | 4 | 2 |
| (D) | 2 | 1 | 4 | 3 |

- A boy starts running from a point P and goes around a circular path of radius a to reach the point Q, which lies exactly opposite to point P on the circle (as shown in the figure).



What is the distance covered by the boy?

- (A) πa
 (B) $2\pi a$
 (C) $2a$
 (D) $2\pi/a$

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5. A ruler shows a length of 5.3 cm when seen from directly above. From an angle, it shows 5.8 cm. The 0.5 cm difference is due to:

- (A) Zero error
- (B) Broken ruler
- (C) Parallax error
- (D) Ruler too short

6. **Assertion (A)** : Keepers are made of non-magnetic materials.

Reason (R) : Keepers are used to protect magnets from physical damage.

- (A) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).
- (C) Assertion (A) is true and Reason (R) is false.
- (D) Assertion (A) is false and Reason (R) is true.

Paragraph for Questions 07 & 08

A teacher placed different materials between a magnet and iron pins to test magnetic shielding. When plastic and wood were used, the magnet still attracted the pins. But when a thick iron plate was placed between them, the attraction stopped. The class discussed that iron can absorb or redirect the magnetic field, preventing it from reaching the pins.

7. Why didn't the pins get attracted when the iron plate was placed?

- (A) The magnet got weaker
- (B) The iron plate blocked the magnetic field
- (C) Pins were non-magnetic
- (D) Magnet lost its charge

8. Which material is least likely to block magnetic force?

- (A) Iron
- (B) Steel
- (C) Plastic
- (D) Cobalt

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9. Assertion (A) : Motion and rest are relative terms.

Reason (R) : An object can be in motion with respect to one thing and at rest with respect to another.

(A) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).

(C) Assertion (A) is true and Reason (R) is false.

(D) Assertion (A) is false and Reason (R) is true.

Sequence Based

10. Demonstrating how a compass needle reacts near different objects.

P. Bring a compass near plastic, wood, and coin.

Q. Observe no major change in direction.

R. Bring it near magnet or wire with current.

S. Observe deflection or movement.

(A) P, Q, R, S

(B) Q, P, R, S

(C) P, Q, S, R

(D) S, Q, R, P

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PART II : CHEMISTRY

This section contains **10 Single Choice Questions (Q : 11 to Q : 20)**. Each question has four choices **(A), (B), (C) and (D)** out of which **ONLY ONE** is correct.

11. Ravi grouped the following materials together: Glass, Thin plastic sheet, Clean water.

His friend said, "They have a common property."

What property did he most likely identify?

- (A) All are magnetic
- (B) All are solid
- (C) All are transparent
- (D) All float on water

12. Why can salt not be separated from water using filtration?

- (A) Salt is heavier than water
- (B) Salt is magnetic
- (C) Salt dissolves in water
- (D) Salt is transparent

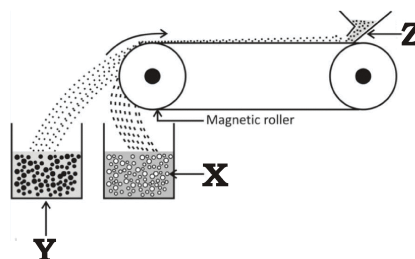
13. Match **Column - I** with **Column - II** and select the correct answer using the codes given below.

Column - I	Column - II
P. Opaque and hard	1. Water
Q. Transparent and liquid	2. Mirror
R. Non-lustrous, rough surface	3. Wood
S. Hard and Conductor	4. Aluminium

Code :

- | | P | Q | R | S |
|-----|---|---|---|---|
| (A) | 1 | 2 | 3 | 4 |
| (B) | 4 | 3 | 2 | 1 |
| (C) | 3 | 1 | 4 | 2 |
| (D) | 2 | 1 | 3 | 4 |

14. In the magnetic separation, find **X, Y** and **Z**?



- (A) X=Non-magnetic Substance; Y=Magnetic Substance; Z=Mixture
- (B) X=Magnetic Substance; Y=Mixture; Z=Non-magnetic Substance
- (C) X=Mixture; Y=Non-magnetic Substance; Z=Magnetic Substance
- (D) X=Magnetic Substance; Y=Non-magnetic Substance; Z= Mixture

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15. Which of the following statements is correct about metals and non-metals?

- (A) Metals are poor conductors of heat and electricity, non-metals are good conductors.
- (B) Metals are lustrous and malleable; non-metals are usually dull and brittle.
- (C) Both metals and non-metals are magnetic.
- (D) Non-metals have high melting points, metals have low melting points.

16. **Assertion (A)** : Evaporation is used in salt-making industries.

Reason (R) : Salt evaporates faster than water.

- (A) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).
- (C) Assertion (A) is true and Reason (R) is false.
- (D) Assertion (A) is false and Reason (R) is true.

Paragraph for Questions 17 & 18

Separation of substances is essential not only in domestic activities but also in scientific and industrial processes. For instance, chromatography is used to separate pigments in inks or dyes. Centrifugation uses rapid spinning to separate heavier particles from lighter ones in liquids. In industries, fractional distillation is used to refine crude oil. Separation method requires understanding the nature of the mixture.

17. A scientist is trying to separate a mixture of alcohol and water. Which method should be used and why?

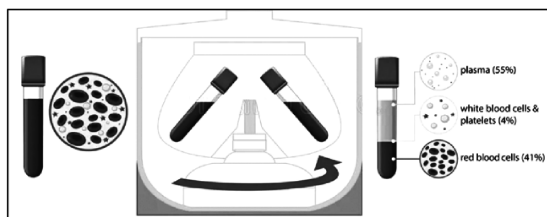
- (A) Filtration, because it separates soluble liquids.
- (B) Evaporation, because alcohol evaporates faster.
- (C) Threshing, because both are transparent liquids.
- (D) Fractional distillation, because it separates based on different boiling points.

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18. Which of the following statements is correct for image?



- (A) Centrifugation, to separate components of a mixture based on their density.
- (B) Chromatography, to separate blood cells.
- (C) Distillation, to separate miscible liquids.
- (D) Decantation, to separate heavier particles from water.

19. **Assertion (A)** : Conductivity, transparency, and solubility are chemical properties of materials.

Reason (R) : Chemical properties describe how a material reacts with other substances.

- (A) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).

(C) Assertion (A) is true and Reason (R) is false.

(D) Assertion (A) is false and Reason (R) is true.

Sequence Based

20. Which is the correct order of grouping materials in a scientific investigation?

- (A) Use→Color→Texture–appearance
- (B) Appearance → Properties – uses → Grouping based on similarities
- (C) Grouping → Property test → Naming – arrange
- (D) Function → Smell → Conductivity – solubility

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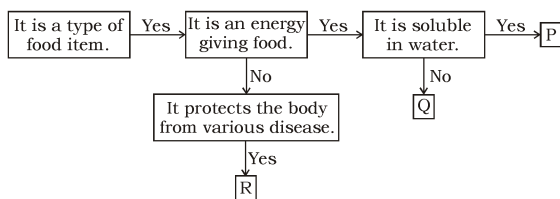
PART III : BIOLOGY

This section contains **10 Single Choice Questions (Q : 21 to Q : 30)**. Each question has four choices **(A), (B), (C) and (D)** out of which **ONLY ONE** is correct.

21. Riya wants to test a food sample for presence of proteins. Which of the following should she first add to the sample?

- (A) Iodine solution
- (B) Benedict's solution
- (C) Ethanol
- (D) Copper sulphate solution

22. Identify P, Q and R. Refer to the given flow chart.



- (A) P-Salt, Q-Oil, R-Ghee
- (B) P-Ghee, Q-Papaya, R-Orange
- (C) P-Table sugar, Q-Butter, R-Carrot
- (D) P-Pulses, Q-Bajra, R-Butter

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

Column - I (Component)	Column - II (Main Role/Source)
P. Potato	1. Rich in protein
Q. Milk	2. Good source of vitamins and minerals
R. Pulses	3. Contains mostly carbohydrates
S. Orange	4. Contains calcium and fats

Code :

	P	Q	R	S
(A)	1	2	3	4
(B)	4	3	2	1
(C)	3	4	1	2
(D)	2	1	4	3

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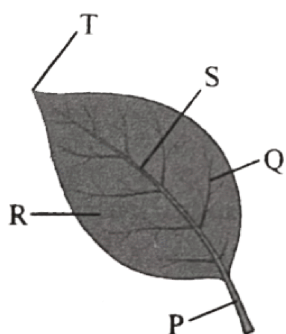
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24. Which part of the flower develops into a fruit after fertilization?



- (A) Ovary
- (B) Stamen
- (C) Sepal
- (D) Petal

25. Choose the correct option for the following figure.



- (A) P → petiole, Q → vein, R → midrib, S → lamina, T → tip
- (B) P → petiole, Q → vein, R → lamina, S → midrib, T → tip
- (C) P → tip, Q → vein, R → midrib, S → lamina, T → petiole
- (D) P → tip, Q → petiole, R → midrib, S → lamina, T → vein

26. **Assertion (A)** : A person who eats only rice and bread might suffer from protein deficiency.

Reason (R) : Rice and bread are rich in carbohydrates but poor sources of protein.

- (A) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).
- (C) Assertion (A) is true and Reason (R) is false.
- (D) Assertion (A) is false and Reason (R) is true.

Paragraph for Questions 27 & 28

Vegetables that we commonly eat come from different parts of plants, such as roots, stems, leaves, flowers, and fruits. Some vegetables like peas and pumpkins are known for their seeds or fruits, while others like cauliflower and broccoli are harvested for their flowers. There are also vegetables that grow underground but are not roots - they may have special structures such as buds or layers, which help in identifying the plant part they belong to. For instance, a vegetable may have multiple fleshy layers without any

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visible leaves, while another may have tiny buds on its surface and grow below the soil. Observing such structural features helps classify whether a vegetable is a modified root, stem, or another part of the plant.

27. Given below is a list of a few vegetables.

- (i) Brinjal
- (ii) Cauliflower
- (iii) Cabbage
- (iv) Potato
- (v) Tomato
- (vi) Onion
- (vii) Broccoli
- (viii) Pumpkin
- (ix) Bottle gourd
- (x) Pea

How many of these are obtained from the stem of the plant?

- (A) 3
- (B) 2
- (C) 4
- (D) 5

28. A student conducted an investigation by dissecting various vegetables to find which plant part they came from. She observed that:

- (i)** One vegetable had multiple concentric fleshy layers and no leaves.
- (ii)** Another vegetable had tiny eyes or buds on its surface and grew underground.

(iii) A third vegetable had a long taproot with no visible buds or leaves.

Based on the observation, which of the following identifies the correct classification?

- (A) (i)-Onion (Stem), (ii)-Potato (Stem), (iii)-Carrot (Root)
- (B) (i)-Cabbage (Leaf), (ii)-Ginger (Root), (iii)-Potato (Stem)
- (C) (i)-Brinjal (Fruit), (ii)-Broccoli (Flower), (iii)-Turnip (Root)
- (D) (i)-Onion (Root), (ii)-Cabbage (Stem), (iii)-Carrot (Stem)

29. Assertion (A) : The process of photosynthesis occurs mainly in the roots of a plant.

Reason (R) : Roots are primarily responsible for absorbing water and minerals from the soil, which are essential raw materials for photosynthesis.

- (A) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).
- (C) Assertion (A) is true and Reason (R) is false.
- (D) Assertion (A) is false and Reason (R) is true.

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Sequence Based

30. Imagine you are planning a meal to be balanced. Arrange these considerations in a logical order to ensure a balanced diet.

- P.** Include a good source of protein for growth and repair.
- Q.** Ensure sufficient roughage and water for proper digestion.
- R.** Provide energy-giving foods like carbohydrates and fats.
- S.** Add fruits and vegetables for vitamins and minerals.

- (A) P, R, Q, S
- (B) R, P, Q, S
- (C) R, P, S, Q
- (D) P, Q, S, R

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PART IV : MATHEMATICS

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

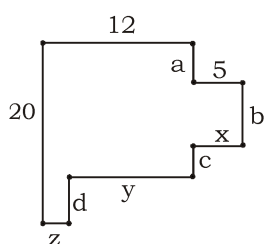
31. Which integer should be placed in the box such that the result is 2 ?

$$\{[(20 - 18 - \square) + 2] \times 4\} \div 14$$

- (A) 2
- (B) 6
- (C) -3
- (D) 7

Sequence Based

32. The adjacent sides of the decagon shown meet at right angles. Arrange all steps to solve its perimeter.



- P.** Perimeter of figure is = $20 + 12 + a + 5 + b + x + c + y + d + z$
- Q.** We can observe that
 $(a + b + c + d) = 20$ and
 $(x + y + z) = 12 + 5 = 17$
- R.** Let us label all the unlabelled sides as a, b, c and d (for all vertical unlabelled sides) and x, y, z (for all horizontal unlabelled - sides)
- S.** $20 + 12 + 5 + (a + b + c + d) + (x + y + z) = 20 + 12 + 5 + 20 + 17 = 74$

Which list shows the steps in the correct order?

- (A) R, S, Q, P
- (B) Q, R, P, S
- (C) R, Q, P, S
- (D) P, R, Q, S

33. Three friends A, B, and C have some money. A has $\frac{3}{10}$ of the total money, B has $\frac{7}{15}$ of the total money and C has $\frac{7}{30}$ of the total money. If the total money is Rs 1500, then how much money does A have ?

- (A) Rs 650
- (B) Rs 550
- (C) Rs 750
- (D) Rs 450

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34. Assertion (A) : If a square, a rectangle, and a triangle are all made from a string of length 30 cm, their perimeter will be same.

Reason (R) : Sides of square, rectangle and triangle are of same length.

(A) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).

(C) Assertion (A) is true and Reason (R) is false.

(D) Assertion (A) is false and Reason (R) is true.

35. Let a, b and c be the three sides of a triangle (in cm) such that $a + b = 2015$, $b + c = 2016$ and $c + a = 2017$ then find the perimeter of the triangle.

(A) 3024 cm

(B) 6032 cm

(C) 6048 cm

(D) 5025 cm

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

(i) If a whole number is divided by another whole number which is greater than the first one, then the quotient is equal to zero

(ii) Sum of two whole numbers is always less than their product.

(iii) Whole numbers are always closed under division

(iv) Natural numbers do not include the additive identity.

Code :

(i) (ii) (iii) (iv)

(A) F F F T

(B) T F T T

(C) T T F T

(D) F T T F

37. There are 7 points on a sheet of paper such that no three are collinear. What is the number of lines that can be drawn by joining in pairs ?

(A) 14

(B) 21

(C) 20

(D) 13

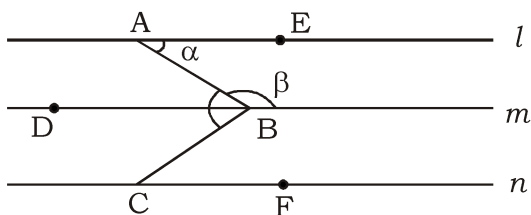
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Paragraph for Questions 38 & 39

If l , m , and n are lines parallel to each other, the given figure. Given that angle $\angle ABC$ is 100° and angle $\angle DBC$ is 75° . Also A, E; D, B; and C, F are points on l , m and n respectively.



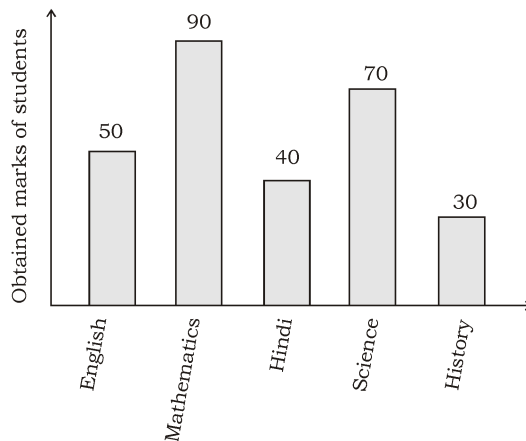
38. Calculate the measures of $\angle\alpha$ and $\angle\beta$.

- (A) $\angle\alpha = 25^\circ$, $\angle\beta = 155^\circ$
- (B) $\angle\alpha = 50^\circ$, $\angle\beta = 150^\circ$
- (C) $\angle\alpha = 60^\circ$, $\angle\beta = 120^\circ$
- (D) $\angle\alpha = 15^\circ$, $\angle\beta = 175^\circ$

39. How many degrees are there in an angle, that is equal to one-fourth of its supplement ?

- (A) 46°
- (B) 54°
- (C) 52°
- (D) 36°

40. Column - I with Column - II and select the correct answer using the codes given below.



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

- | | |
|-----------------------------------------------------------------|-----------------------|
| P. In which subject does he perform best ? | 1. 5 : 4 |
| Q. In which subject student is weak in ? | 2. Mathematics |
| R. The ratio of the highest marks to the lowest marks : | 3. History |
| S. The ratio of marks obtained in English and Hindi is : | 4. 3 : 1 |

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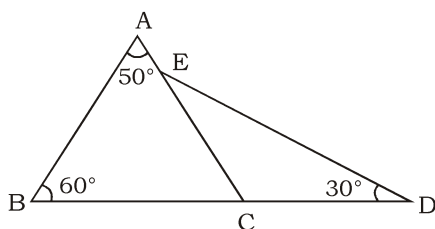
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Code :

	P	Q	R	S
(A)	1	2	3	4
(B)	4	3	2	1
(C)	3	1	4	2
(D)	2	3	4	1

41. In the given figure, find $\angle CED$?



- (A) 110°
- (B) 80°
- (C) 40°
- (D) 30°

Sequence Based

42. Arrange all the steps to solve :

$$4940 \div [12 + 16 \{38 - (8 - 15 + 16) \}]$$

- P.** $4940 \div [12 + 976]$
- Q.** $4940 \div [12 + 16 \{38 - (8 - 31)\}]$
- R.** $4940 \div [12 + 16 \{61\}]$
- S.** $4940 \div 988 = 5$

Which list shows the steps in the correct order?

- (A) P, R, S, Q
- (B) Q, R, P, S
- (C) S, R, P, Q
- (D) Q, S, R, P

43. What is the arithmetic mean and the median of the first seven natural numbers ?

- (A) AM = 5 ; Median = 5
- (B) AM = 4 ; Median = 5
- (C) AM = 6 ; Median = 5
- (D) AM = 4 ; Median = 4

44. Assertion (A) : A fraction that represents a part of whole is a proper fraction.

Reason (R) : A fraction that represents a combination of a whole and a part of the whole is an improper fraction.

- (A) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
- (B) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).
- (C) Assertion (A) is true and Reason (R) is false.
- (D) Assertion (A) is false and Reason (R) is true.

45. If $5\frac{1}{3} - 3\frac{2}{3} \div m + 3\frac{1}{5} \div 1\frac{1}{5} = 7$ then find the value of m.

- (A) $1\frac{2}{5}$
- (B) $3\frac{2}{4}$
- (C) $4\frac{3}{3}$
- (D) None of these

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

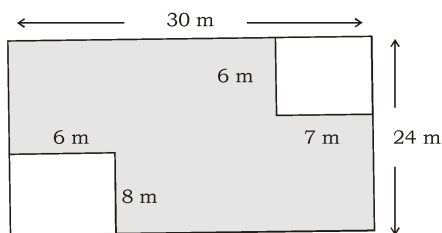
- (i) Two lines in a plane are either parallel or intersecting.
- (ii) The maximum number of points of intersection of three lines is 3.
- (iii) Two planes will always intersect.
- (iv) Three points always determine a plane.

Code :

(i) (ii) (iii) (iv)

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

47. The shaded area of the floor is to be tiled. If the cost of tiling is Rs 17 per m^2 , find the total cost of tiling the floor.



- (A) Rs 12,240
- (B) Rs 10,710
- (C) Rs 13,270
- (D) Rs 11,830

Paragraph for Questions 48 & 49

M and N are two numbers. The non zero digit in the crore's place of M is 4 less than the digit in the thousands place of N. The non zero digit in tens place of N is 3 less than the number in hundreds place of M. If both the numbers have equal number of digits and all the remaining digits are equal but not zeros.

48. What is the number M ?

- (A) 1,11,11,511
- (B) 1,11,11,411
- (C) 1,11,15,411
- (D) 1,11,41,111

49. What is the least possible difference between M and N. ($N > M$)

- (A) 4700
- (B) 5700
- (C) 3700
- (D) 6700

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

Column – I	Column – II
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P. $(-516) + \{(-327) - (-925)\}$	1. $-10,000$
------------------------------------------	---------------------

Q. $-45632 - (-35632)$	2. -42
-------------------------------	-----------------

R. $\{-380 - (675)\} - \{865 + (493)\}$	3. 82
------------------------------------------------	----------------

S. $\{-340 - (-170)\} - \{(-45) - 83\}$	4. -2413
------------------------------------------------	-------------------

Code :

	P	Q	R	S
(A)	1	2	3	4
(B)	4	3	2	1
(C)	2	1	4	3
(D)	3	1	4	2

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PART V : LOGICAL REASONING & IQ

This section contains **10 Single 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. Find the next number of given number

series :

7, 12, 19, 30, 47, ?

- (A) 72
- (B) 79
- (C) 78
- (D) 67

52. A series is given with one term missing.

Select the correct alternative from the given ones that will complete the series :

ABC, CUK, ENS, GGA, ?

- (A) IQR
- (B) MNO
- (C) IRQ
- (D) IZI

53. What comes next in the series ?

A2, C8, E32, G128, ?

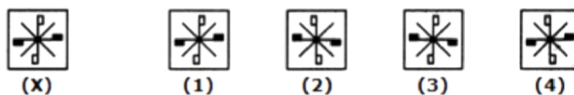
- (A) I516
- (B) K525
- (C) I512
- (D) L630

54. Kunal walks 10 km towards North.

From there he walks 6 km towards South. Then, he walks 3 km towards East. How far and in which direction is he with reference to his starting point ?

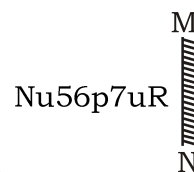
- (A) 5 km West
- (B) 7 km West
- (C) 7 km East
- (D) 5 km North-East

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



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

56. Find the mirror - image of the given combination (MN is a mirror).



- (A) R7u56pN
- (B) N7u56pR
- (C) R7u56pN
- (D) R7u56pN

Space for rough work

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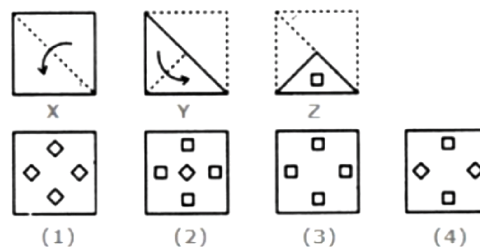
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57. In a row of persons, the position of Nitin from the left side of the row is 27th and there are 5 persons after Nitin in the row. Find the total number of persons in the row ?
- (A) 33
(B) 37
(C) 32
(D) 30

58. In a queue, A is 18th from the front while B is 16th from the back. If C is 24th from the front and is exactly in the middle of A and B, then how many persons are there in the queue ?
- (A) 45
(B) 46
(C) 47
(D) 48

59. Which two signs should be interchanged to make the given equation correct ?
- $$8 + 6 \times 4 \div 2 - 10 = 6$$
- (A) + and ×
(B) - and +
(C) × and =
(D) × and -

60. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



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

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Space for rough work

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