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.*

1. When a soft iron rod is placed inside a current-carrying coil, what happens to the strength of the electromagnet?
(A) Increases
(B) Remains same
(C) Decreases
(D) Becomes zero

2. High-speed magnetic levitation (maglev) trains float above the track and move without touching it, using which type of magnets?
(A) Electromagnets
(B) Bar magnets
(C) Natural magnets
(D) None of these

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

Column – I	Column – II
P. Crane with electromagnet	**1.** Lifts scrap iron in junkyards
Q. Magnetic door catch	**2.** Keeps refrigerator doors closed
R. Magnetic scanner	**3.** Reads security tags and barcodes
S. MRI machine	**4.** Uses powerful magnets to scan body

Code :

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

4. A student rubs a magnet over a steel blade repeatedly in one direction. What happens?
(A) The blade heats up
(B) The blade gets permanently magnetized
(C) The blade loses its strength
(D) The blade breaks into pieces

5. An object moving in a straight line with changing speed is an example of:
(A) Uniform rectilinear motion
(B) Non-uniform rectilinear motion
(C) Periodic motion
(D) Circular motion

Space for rough work

6. **Assertion (A) :** A steel rod remains magnetized longer than an iron rod.
Reason (R) : Steel is harder to magnetize but retains magnetism for a longer time.

(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

If the same motion occurs again and again, it is said to be repetitive motion. Repetitive motion that repeats itself in regular intervals of time is called periodic motion. The time taken by a pendulum to complete one oscillation is known as its time period. Frequency of a pendulum is defined as the number of oscillations completed in 1 second.

7. The motion exerted by a swing is:

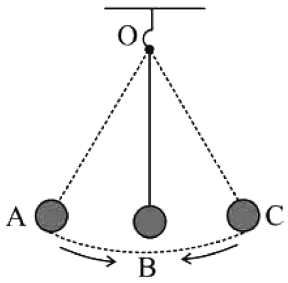
(A) Periodic

(B) Non-periodic

(C) Rotational

(D) Circular

8. If the time taken by the pendulum from point C to A is 4 seconds, then the time taken by it to complete one oscillation is:



(A) 8 s

(B) 12 s

(C) 16 s

(D) 4 s

9. **Assertion (A) :** The distance between two celestial bodies is measured in the unit of light year.
Reason (R) : One light year is defined as the total distance travelled by the light in one year.

(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.

Space for rough work

Sequence Based

10. Proving motion is relative (e.g., in a train)

P. Sit inside a moving train and observe a passenger sitting opposite to you.

Q. Look outside the train - trees, poles are moving backward.

R. Conclude: motion is relative- depends on chosen reference point.

S. Notice the passenger appears stationary with respect to you.

T. Repeat with different vehicles or positions.

(A) P, R, T, Q, S

(B) P, S, Q, R, T

(C) T, R, P, Q, S

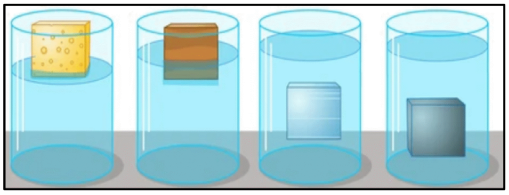
(D) T, P, Q, S, R

Space for rough work

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. The diagram below shows four objects placed in water:



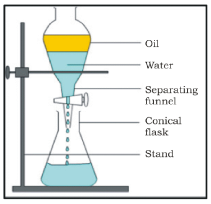
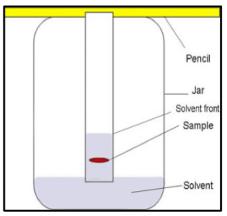
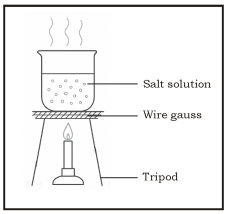
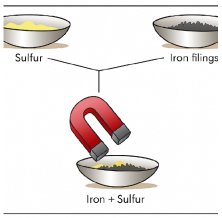
If the density of water is 1 g/cm³, and an object is half-submerged, what can you say about object's approximate density?

(A) Greater than 1 g/cm³
(B) Exactly 1 g/cm³
(C) Less than 1 g/cm³
(D) Equal to the density of glass

12. Riya's science teacher gave her a challenge:
She was asked to purify impure alcohol from a water-alcohol mixture.
Which of these techniques is most suitable for Riya's task ?

(A) Hand picking
(B) Distillation
(C) Filtration
(D) Sieving

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

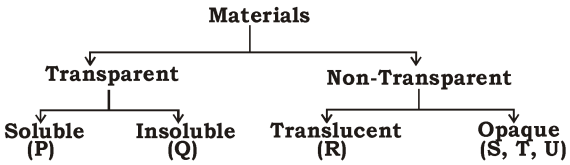
Column – I		Column – II
P.		**1.** Chromatography
Q.		**2.** Evaporation
R.		**3.** Solvent extraction
S.		**4.** Magnetic separation

Space for rough work

Code :

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

14. The given flowchart was prepared by Arjun for sorting materials into different groups based on transparency and solubility in water.



Identify **P**, **Q**, **R**, **S**, **T**, **U** using the given materials:

Wood, Clear plastic sheet, Milk, Alcohol, Chalk powder, Butter paper.

(A) P–Alcohol, Q–Clear plastic sheet, R–Milk, S–Wood, T–Butter paper, U–Chalk powder

(B) P–Alcohol, Q–Chalk powder, R–Milk, S–Butter paper, T–Wood, U–Clear plastic sheet

(C) P–Alcohol, Q–Wood, R–Butter paper, S–Chalk powder, T–Milk, U–Clear plastic sheet

(D) P–Alcohol, Q–Clear plastic sheet, R–Butter paper, S–Wood, T–Chalk powder, U–Milk

15. Which of the following best explains why filtration is effective in separating chalk powder from water?

(A) Chalk powder dissolves in water

(B) Chalk powder is magnetic

(C) Chalk powder is larger, denser and insoluble

(D) Chalk powder evaporates faster than water

16. **Assertion (A) :** Metals and non-metals are grouped in same group because they show some same properties.

Reason (R) : Grouping similar materials helps in comparing and studying them better.

(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.

Space for rough work

Paragraph for Questions 17 & 18

Imagine a kitchen where grains, pulses, sugar, salt, and spices are not kept in separate containers. It would become difficult and confusing to find or use the required ingredient while cooking. Similarly, in a science laboratory, chemicals are stored in labelled containers according to their nature and safety level. This shows how sorting helps in efficient usage, safety, and time management.

17. Which of the following is/are a logical outcome of sorting materials into groups?

(i) It helps us to develop logical thinking and organization.

(ii) It allows us to mix harmful and useful substances.

(iii) It helps in choosing the right material for the right job.

(iv) It helps in converting materials into energy.

(A) (i), (ii) and (iii)

(B) (ii) and (iv)

(C) Only (iii)

(D) (i) and (iii)

18. A student wraps a torch with three layers of butter paper and switches it on in a dark room.

What will most likely happen?

(A) The room will be brightly lit.

(B) The room will be partially lit with a blurry light.

(C) No light will pass through at all.

(D) The butter paper will glow and become transparent.

19. **Assertion (A) :** Sieving is used to separate a mixture of flour and sugar.

Reason (R) : Sieving works when components differ significantly in particle size.

(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.

Space for rough work

Sequence Based

20. Arrange the following steps in the correct sequence involved in the process of threshing and post-threshing grain handling:

1. Grain is separated from chaff using winnowing.

2. Harvested crop is beaten to loosen grains from stalks.

3. Grains are dried in the sun to remove moisture.

4. The crop is cut and collected from the field.

5. Grains are stored in jute bags or silos.

(A) $4 \rightarrow 2 \rightarrow 1 \rightarrow 3 \rightarrow 5$

(B) $4 \rightarrow 2 \rightarrow 3 \rightarrow 1 \rightarrow 5$

(C) $2 \rightarrow 4 \rightarrow 1 \rightarrow 3 \rightarrow 5$

(D) $4 \rightarrow 3 \rightarrow 2 \rightarrow 1 \rightarrow 5$

Space for rough work

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. Painful bones, bowed legs and thickened wrists are a deficiency disease 'X'. Identify the deficiency disease.

(A) Marasmus
(B) Kwashiorkor
(C) Pellagra
(D) Rickets

22. Which of the following statements is correct regarding vitamin C?

(A) It keeps the eyes healthy and helps to prevent night blindness.
(B) Its deficiency causes pellagra.
(C) It helps to prevent goitre.
(D) It is richly present in orange and its deficiency causes scurvy.

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

Match the following components of food with their functions/associated aspects:

Column – I	Column – II
P. Strong bones and teeth	**1.** Vitamin C
Q. Prevents scurvy	**2.** Calcium
R. Primary source of energy	**3.** Iron
S. Component of hemoglobin	**4.** Carbohydrates

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

24. Select the correct match.

	Plant	Type of root system	Type of venation
(A)	Banana	Fibrous	Reticulate
(B)	Grass	Tap	Parallel
(C)	Radish	Tap	Reticulate
(D)	Onion	Tap	Parallel

25. Which type of root system has a main, thick root with smaller side roots branching off it?

(A) Prop root system
(B) Tap Root system
(C) Fibrous root system
(D) Adventitious root system

Space for rough work

26. **Assertion (A) :** Carbohydrates are also known as energy-giving foods.

Reason (R) : They provide immediate energy to the body for various activities.

(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).

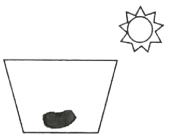
(C) Assertion (A) is true and Reason (R) is false.

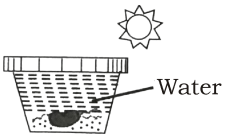
(D) Assertion (A) is false and Reason (R) is true.

Paragraph for Questions 27 & 28

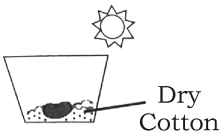
Seed germination is the process through which a seed begins to develop into a new plant. This biological event is triggered when certain environmental conditions are met, initiating changes inside the seed. The seed absorbs moisture and undergoes internal changes that lead to the emergence of the embryonic parts. Several external factors influence this process, and their correct combination is essential. If any one of these factors is missing or unfavorable, the seed may remain inactive or fail to sprout.

27. Which of the following is best suitable condition for seed germination?

(A) 

(B) 

(C) 

(D) 

28. A seed kept in water continuously but not exposed to air fails to germinate. What could be the most likely reason for this failure?

(A) Excess water caused the seed to rot.

(B) Light was absent for photosynthesis.

(C) The seed lacked enough temperature for growth.

(D) Oxygen was not available for aerobic respiration.

Space for rough work

29. **Assertion (A) :** If a plant's stem is weak and it spreads along the ground, it is called a creeper.

Reason (R) : Creepers are plants that require support to grow upright because their stems are too fragile to stand on their own.

(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

30. Arrange the steps in the correct order to perform a test for the presence of starch in a food item.

P. Add 2-3 drops of dilute iodine solution to the food item.

Q. Take a small quantity of the food item in a test tube or on a plate.

R. Observe a blue-black colour change.

S. If the food is solid, add a little water and make a paste or solution.

(A) Q, S, P, R

(B) Q, R, P, S

(C) S, R, P, Q

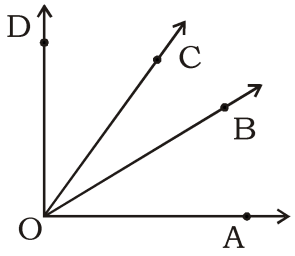
(D) R, P, Q, S

Space for rough work

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 of the following pairs of angles are adjacent angles ?



(A) $\angle AOB, \angle BOD$

(B) $\angle BOC, \angle AOC$

(C) $\angle COD, \angle AOD$

(D) $\angle DOC, \angle AOB$

Sequence Based

32. Simplify : $1\frac{2}{15}+2\frac{2}{15}+3\frac{2}{15}+.....+100\frac{2}{15}$

P. $(50 \times 101) + \frac{40}{3} = 5050 + 13\frac{1}{3}$

$= 5063\ \frac{1}{3}$

Q. $(1 + 2 + 3 + ... + 100)$

$+\left[\frac{2}{15}+\frac{2}{15}+.....+\frac{2}{15}\right](100\text{ terms})$

R. $(100 + 1) + (99 + 2) + ...+$

$(50 + 51) + \left(\frac{2}{15}\times 100\right)$

S. $(101 + 101 + ... + 101)$ (50 terms)

$+\left(\frac{200}{15}\right)$

Which list shows the steps in the correct order?

(A) R, Q, P, S

(B) Q, R, S, P

(C) Q, S, R, P

(D) Q, P, R, S

33. Anil travels from place A to place B and Akhil travels from place B to place A. Anil travels one-third of the distance and Akhil travels one-fourth of the distance. Anil travels 1 kilometer more than the distance travelled by Akhil. What is the distance between place A and place B ? (In km)

(A) 9

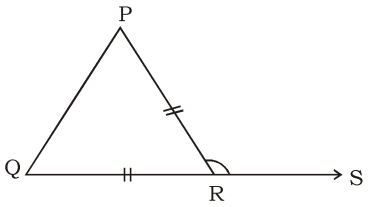
(B) 10

(C) 12

(D) 18

Space for rough work

34. **Assertion (A) :** In the given figure, $\angle PRS = 2\ \angle PRQ$



Reason (R) : In the given figure, $\angle PRS = \angle PQR + \angle QPR$

(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. "P is neither positive nor negative; Q = – | – 9 |; and R is the absolute value of –13." Which of the following is the value of P + Q + R ?

(A) 21

(B) 22

(C) 4

(D) –4

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

(i) The surface of the ball is curved while the surface of the wall is flat.

(ii) Concurrent lines always meet at the same point.

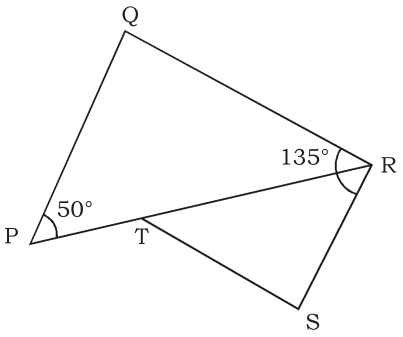
(iii) A plane has an infinite number of lines.

(iv) There are infinite number of points in a line.

Code :

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

37. In the given figure, $\angle QPR = 50°$, $\angle QRS = 135°$, PQ = PR, and ST = SR. Find the measures of $\angle S$



(A) 50°

(B) 60°

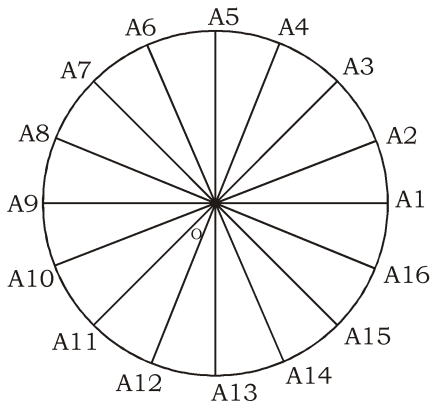
(C) 80°

(D) 40°

Space for rough work

Paragraph for Questions 38 & 39

The circle is divided into 16 equal parts.



38. What is the measure of $\angle A_1OA_2$?

(A) $22\frac{1}{2}^\circ$

(B) $23\frac{1}{2}^\circ$

(C) $24\frac{1}{2}^\circ$

(D) $21\frac{1}{2}^\circ$

39. How many times is the $\angle A_1OA_{12}$ of the $\angle A_1OA_2$?

(A) 11 times

(B) 10 times

(C) 9 times

(D) 8 times

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

For a given data, Diya drew a bar graph and Jaya drew a pie chart. By reading both diagrams, they understood that 4 cm is equivalent to 28°. Column I consists of the length of four bars out of six of the bar graph. Column II consists of sector angles which represent the components of the pie chart.

Column – I	**Column – II**
P. 3 cm	**1.** 42°
Q. 5 cm	**2.** 14°
R. 6 cm	**3.** 35°
S. 2 cm	**4.** 21°

Code :

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

Space for rough work

41. The following table shows various sports played by students of a school

Sport	Football	Volleyball	Badminton	Chess
Number of Student	68	34	56	42

If we represent these values in the form of a bar graph, and the height of the bar representing to football is 13.6 cm, find the difference between the heights of the bars corresponding to volleyball and badminton.

(A) 4.4 cm

(B) 6.8 cm

(C) 8.8 cm

(D) 7.7 cm

Sequence Based

42. Arrange all the steps to solve :

1 – 2 + 3 – 4 + 5 – 6 + 7 – 8 + ... +19 – 20

P. 100 + (–110)

Q. (1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19)+ [(–2) + (–4) + (–6) + (–8) + (–10) + (–12) + (–14) + (–16) + (–18) + (–20)]

R. (100 – 110) = –10

S. 1 – 2 + 3 – 4 + 5 – 6 + 7 – 8 + 9 – 10 + 11 – 12 + 13 – 14 + 15 – 16 + 17 – 18 + 19 – 20

Which list shows the steps in the correct order?

(A) Q, S, R, P

(B) S, Q, R, P

(C) S, Q, P, R

(D) Q, S, P, R

43. Simplify : $1\frac{1}{11}+2\frac{2}{11}+3\frac{3}{11}+\frac{4}{11}+\frac{5}{11}+\frac{6}{11}$

(A) $7\frac{11}{10}$

(B) $7\frac{10}{11}$

(C) $8\frac{11}{10}$

(D) $9\frac{10}{11}$

44. Assertion (A) : $\frac{3}{10}$ and $\frac{11}{18}$ are equivalent fractions.

Reason (R) : If ad = bc then $\frac{a}{b}$ and $\frac{c}{d}$ are equivalent fractions.

(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.

Space for rough work

45. The length and breadth of a rectangle are in the ratio 3:2. The perimeter of the rectangle is 10 cm. Then its length is ____ cm.

(A) 2

(B) 5

(C) 3

(D) 4

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

(i) A fraction is said to be in its simplest or lowest form if the HCF of the numerator and denominator is 1.

(ii) A fraction $\frac{a}{b}$ is greater then $\frac{c}{d}$ if the cross products ad < bc.

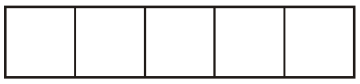
(iii) The least common denominator of unlike fractions is the LCM of their denominator.

(iv) $\frac{13}{39}, \frac{5}{15}$ are a pair of equivalent fractions.

Code :

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

47. A rectangular sheet is cut along its length into five equal squares as shown in the figure. The area of a square is 16 cm^2. Find the perimeter of the rectangle.



(A) 50 cm^2

(B) 48 cm^2

(C) 51 cm

(D) 48 cm

Paragraph for Questions 48 & 49

In some card games, it is possible to have positive and negative scores. The table below shows the scores for two teams playing a series of four card games.

Team-1	–2	–13	20	2
Team-2	5	11	–7	–3

Based on the information answer the question given below :-

48. If the winner is the team with the greater score, by how much value, the winner team wins the match after 4 games.

(A) 5

(B) –35

(C) 1

(D) –23

Space for rough work

49. Which team has the least score after the 4 games ?

(A) Team 1

(B) Team 2

(C) Both A and B

(D) Can't say

50. Match **Column – I [The number of points]** with **Column – II [Number of line segment]** and select the correct answer using the codes given below.

Column – I	**Column – II**
P. 4	**1.** 10
Q. 5	**2.** 28
R. 7	**3.** 21
S. 8	**4.** 6

Code :

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

Space for rough work

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 missing number of given number series :

?, 32, 51, 74, 103, 134

(A) 7

(B) 15

(C) 13

(D) 17

52. Select the letters from among the given options that can replace the question mark (?) in the following series :

BZA, DYC, FXE, ?, JVI

(A) HUG

(B) HWG

(C) UHG

(D) WHG

53. In alphabet series, some alphabets are missing which are given in that order as one of the alternatives below it. Choose the correct alternative :

bca _ b _ aabc _ a _ caa

(A) acab

(B) bcbb

(C) cbab

(D) ccab

54. Tina drives 45 kms towards East, turns right and drives 65 kms, then turns left and drives 33 kms. In which direction is she facing now ?

(A) East

(B) North

(C) West

(D) South

55. Find the water-image of the given letters :

NhRqSy

(A) NhRdSy

(B) NqRdSy

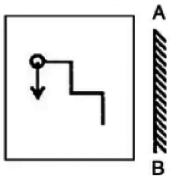
(C) NhRdSy

(D) NhRdSy

Space for rough work

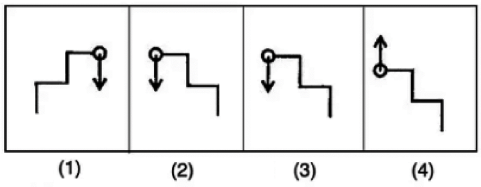
56. Choose the correct mirror-image of the given figure (X) from amongst the four alternatives :

Question Figure :



(X)

Answer Figures :



(A) 1

(B) 2

(C) 3

(D) 4

57. Mohan and Ramesh are ranked 7th and 11th respectively from the top in a class of 41 students. What will be their respective ranks from the botton in the class ?

(A) 30th and 34th

(B) 34th and 30th

(C) 35th and 31st

(D) 36th and 32nd

58. In a row of children, Dipa is 5th from the left and Vijay is 6th from the right. When they interchange their places among themselves, Dipa becomes 13th from the left. Then, what will be Vijay's position from the right ?

(A) 4th

(B) 14th

(C) 8th

(D) 12th

59. If P means '÷', Q means '+', R means '–'. and S means '×', then the value of 10 R 192 P 48 S 48 P 96 Q 1 is :

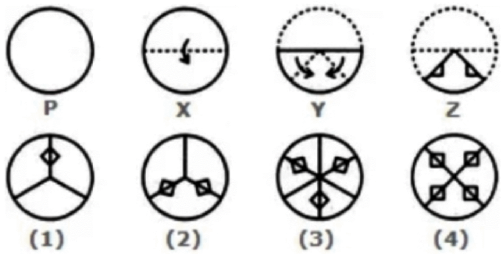
(A) 12

(B) 19

(C) 11

(D) 9

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



(A) 1

(B) 2

(C) 3

(D) 4

Space for rough work