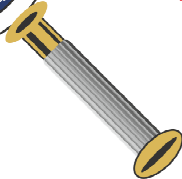


KH

Exam for
Young Scientists..!



J-2025



SCHOLARSHIP FOR HIGH ACHIEVERS
AND NEEDY STUDENTS

SCIENCE APTITUDE TEST

CLASS - 5

SOLUTIONS

TEST CODE - 12

WhatsApp Channel



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PART - I : MENTAL ABILITY

1.

Sol. (b)

2.

Sol. (b) 30

The series follows the pattern

$$\Rightarrow 6 - 2 = 4$$

$$\Rightarrow 12 - 6 = 6$$

$$\Rightarrow 20 - 12 = 8$$

So, the next number will be $30 - 20 = 10$.

3.

Sol. (b)

1st letter :

A $\xrightarrow{+6}$ G $\xrightarrow{+6}$ M $\xrightarrow{+6}$ S $\xrightarrow{+6}$ Y

2nd letter :

Z $\xrightarrow{-6}$ T $\xrightarrow{-6}$ N $\xrightarrow{-6}$ H $\xrightarrow{-6}$ B

4.

Sol. (d) Voice

Ear, Eye, and Nose are all sensory organs.
Voice is not an organ; it is a sound produced by the vocal cords.

5.

Sol. (d) Hammer

Axe, Sword, and Knife are all blade weapons or tools primarily used for cutting. A hammer is a tool used for hitting/pounding, not cutting

6.

Sol. (c) 8

The series follows the pattern of adding the two previous numbers to get the next number.

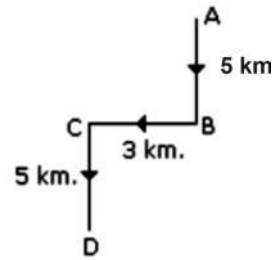
$$0 + 1 = 1, 1 + 1 = 2, 1 + 2 = 3, 2 + 3 = 5$$

So, the next number will be $3 + 5 = 8$.

7.

Sol. (a)

8.

Sol. (d)

Hence required direction is South-West.

9.

Sol. (c) H $\xrightarrow{+1}$ I $\xrightarrow{+2}$ K $\xrightarrow{+3}$ N $\xrightarrow{+4}$ R

10.

Sol. (a)A $\xrightarrow{+6}$ G $\xrightarrow{+5}$ L $\xrightarrow{+4}$ P $\xrightarrow{+3}$ S $\xrightarrow{+2}$ U

11.

Sol. (a) 169Here, $112 = 121$ So, $132 = 169$

So, the missing number is 169.

i.e., $11:121 :: 13:169$.

12.

Sol. (a) 13

If the tree is 7th from either end, there are 6 trees on each side of it, making a total of $6 + 6 + 1 = 13$ trees.

13.

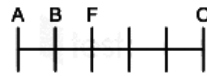
Sol (d)

(1) A and C are at extreme ends.

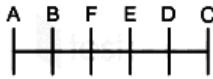
Case 1 :

Case 2 :

- 2) B is to the right of A and F is third to the left of C. As there is no place for B to the right of A,
Case 1 gets eliminated.



- 3) E is between F and D.



Hence, B is sitting second place from the left in the row.

14.

Sol. (d) 12-All other numbers are prime numbers, but 12 is not.

15.

Sol. (c) 64-The pattern is each number multiplied by 2 (2, 4, 8, 16, 32, 64).

PART - II : MATHEMATICS

1.

Sol. (c) Metre

The metre (m) is the standard unit for measuring length in the metric system.

2.

Sol. (c) Product

When two or more numbers are multiplied, the answer is called the product.

3.

Sol. (c) Triangle

A triangle is a polygon defined by having three sides and three angles.

4.

Sol. (d) -5

Below zero indicates a negative number. Five degrees below zero is represented as -5.

5.

Sol. (b) Denominator

In a fraction, the number below the line (which tells the total number of equal parts) is the denominator.

6.

Sol. (a) 203.7

two hundred three and seven tenths

$$= 203 + \frac{7}{10} = 203.7$$

7.

Sol. (b) length $\times$ breadth

The formula for the area of a rectangle = Length (l) $\times$ Breadth (b).

8.

Sol. (a) 50

$9 \times 50 = 450$. Therefore, $450 \div 9 = 50$.

9.

Sol. (c) Weighing Scale

Weight is measured using a weighing scale. A ruler measures length, a jug measures volume, and a thermometer measures temperature.

10.

Sol. (c) 36 metres

Cloth for 12 shirts = Cloth for 1 shirt $\times$ Number of shirts = 3 m $\times$ 12 = 36 m.

11.

Sol. (b) Two fixed end points

A line segment is a part of a line with two distinct end points.

12.

Sol. (a) -7, -3, 0, 2, 5

On a number line, numbers increase from left to right. So, -7 is the smallest, then -3, then 0, then 2, and 5 is the largest.

13.

Sol. (c)

When denominators are the same, we add the numerators $\frac{2}{7} + \frac{3}{7} = \frac{(2+3)}{7} = \frac{5}{7}$

14.

Sol. (c) 50.0

$125 \times 4 = 500$. Since there is one digit after the decimal in 12.5, the product will have one digit after the decimal: 50.0.

15.

Sol. (c) 15 cm

Perimeter of a square = $4 \times \text{side}$.

So, side = Perimeter $\div 4 = 60 \text{ cm} \div 4 = 15 \text{ cm}$.

16.

Sol. (c) An improper fraction has a numerator greater than or equal to its denominator. Here, $7 > 6$.

17.

Sol (b) 6,930

The first '7' is in the thousands place (7,000). The second '7' is in the tens place (70). The difference is $7000 - 70 = 6,930$.

18.

Sol. (b) 9 days

$250 \div 30 = 8.333...$ This means it will take more than 8 days.

After 8 days, $8 \times 30 = 240$ pages are read.

On the 9th day, the remaining 10 pages will be read. So, it will take 9 full days to finish the entire book.

19.

Sol. (c) 0.75 is seventy-five hundredths, or $\frac{75}{100}$.

Dividing both numerator and denominator by 25 gives $\frac{3}{4}$

20.

Sol. (c) 225 cm^2

Area of a square = side $\times$ side = $15 \text{ cm} \times 15 \text{ cm} = 225 \text{ cm}^2$.

21.

Sol. (a) 4 and -5

Let's check others:

(a) $4 + (-5) = (-1)$,

(b) $-10 + 11 = +1$,

(c) $(-7) + (-8) = -15$,

(d) $5 + 6 = 11$

22.

Sol. (c) Rs 256.50

Cost of 3 kg = $85.50 \times 3 = 256.50$. Since there are two digits after the decimal in the original number, the product will have two digits after the decimal.

23.

Sol. (b) (a line with one end point and an arrow)

A ray is a part of a line that has one fixed starting point but goes on forever in the other direction, denoted by an arrow.

24.

Sol. (a) True

To compare, find a common denominator (8).

$$\frac{3}{4} = \frac{6}{8}. \text{ Now, compare } \frac{7}{8} \text{ and } \frac{6}{8}.$$

$$\text{Since } 7 > 6, \frac{7}{8} > \frac{6}{8}, \text{ so } \frac{7}{8} > \frac{3}{4}.$$

25.

Sol. (a) 18 m

Area of rectangle = Length $\times$ Width.

$$\text{So, Width} = \text{Area} \div \text{Length} = 450 \text{ m}^2 \div 25 \text{ m} = 18 \text{ m}.$$

26.

Sol. (a) 1.7 m

$$\begin{aligned} \text{Length of each piece} &= \text{Total length} \div \\ \text{Number of pieces} &= 8.5 \text{ m} \div 5 = 1.7 \text{ m}. \end{aligned}$$

27.

Sol. (c) -6

$$\text{Solve step-by-step: } 5 - 8 = -3. \text{ Then, } -3 + (-3) = -6.$$

28.

Sol. (d)

*Mika has $\frac{2}{3}$ of a cake to share among 4 people (herself + 3 friends).

$$\text{So, each person gets } \left(\frac{2}{3}\right) \div 4.$$

Dividing by a number is the same as multiplying by its reciprocal:

$$\frac{2}{3} \times \frac{1}{4} = \frac{2}{12} = \frac{1}{6}.$$

29.

Sol. (b) 13 cm

Let the width be 'w' cm. Therefore, length 'l' = w + 4 cm.

$$\text{Perimeter} = 2(l + w) = 44 \text{ cm}.$$

$$\text{So, } 2((w+4) + w) = 44-$$

$$\Rightarrow 2(2w + 4) = 44$$

$$\Rightarrow 4w + 8 = 44$$

$$\Rightarrow 4w = 44 - 8$$

$$\Rightarrow 4w = 36$$

$$\Rightarrow w = 9 \text{ cm}.$$

$$\text{Then, length } l = w + 4 = 9 + 4 = 13 \text{ cm}.$$

30.

Sol. (b) 28 L

$$\text{Water in first bucket} = 15.75 \text{ L}.$$

$$\begin{aligned} \text{Water in second bucket} &= 15.75 \text{ L} - 3.5 \text{ L} \\ &= 12.25 \text{ L}. \end{aligned}$$

$$\text{Total water} = 15.75 \text{ L} + 12.25 \text{ L} = 28.00 \text{ L}.$$

PART - III : PHYSICS & CHEMISTRY

1.

Sol. (b) Natural satellites are celestial bodies that orbit around a planet due to its gravitational pull. Examples include the Moon orbiting Earth.

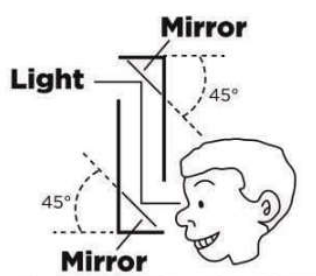
2.

Sol. (a) After the full moon day, the Moon enters the waning phase, where the illuminated portion visible from Earth decreases each day until the new moon day.

3.

Sol. (b) periscope is a tool that helps you see things that are blocked by something tall, like a wall.

The first mirror is placed at the top of the periscope. It is angled in such a way that it catches the light coming from the cars on the road and reflects it downwards. The second mirror is placed at the bottom of the periscope. It is angled to catch the light reflected by the top mirror and then reflects it towards your eyes.



The two mirrors must be placed parallel to each other and at a 45-degree angle to the path of light. The light is reflected correctly twice, allowing you to see objects that are at a different height or behind an obstacle.

4.

Sol. (c) When the car moves 2 meters towards the mirror, its distance from the mirror becomes $8 - 2 = 6$ meters. The image will be formed 6 meters away from the mirror, behind it.

5.

Sol. (a) Using foot span as a reference for measurement can lead to inaccuracies because foot span varies from person to person and also if the hand is not stretched to the same extent each time. Step 1 would likely give a wrong measurement due to this variability. Step 3, using a 2-foot stick to measure 4 feet (2 sticks), can be accurate if done correctly. Therefore, the step that would most likely result in inaccurate length measurement is Step 1.

6.

Sol. (d) The odd one out is "Revolution of the moon" because the other options involve rotation around an axis, whereas revolution refers to orbiting around another body.

7.

Sol. (b) Raju used the principle of a lever, a type of simple machine, to lift the big rock. By placing the rod under the rock and using a smaller rock as a fulcrum, he was able to apply less force to move the heavier rock.

8.

Sol. (c) In a vacuum, both stones fall under the sole influence of gravity, which accelerates them equally regardless of their mass, so they will reach the ground at the same time.

9.

Sol. (b) The object will keep moving because there's no external force (like friction) to slow it down or change its motion, according to Newton's First Law of Motion.

10.
Sol. (c) Wind energy is the energy that comes from the movement of air, like when wind blows. We use this energy to generate electricity, grind grains, pump water etc.
11.
Sol. (b) Hydrogen
Hydrogen is a gas at room temperature. Gases have the weakest intermolecular forces compared to liquids (water, acetone) or solids (steel).
12.
Sol. (d) Evaporation
Salt dissolves in water not removable by filtration/decantation. Evaporation removes water, leaving salt behind.
13.
Sol. (c) Plastic
Silver, steel, and sand are denser than water, so sink. Plastic is less dense, so floats.
14.
Sol. (a) Milky glass allows light to pass partially but not clearly (blurred).
15.
Sol. (b) Sand can be separated from water by sedimentation, filtration, or evaporation — but not by freezing.
16.
Sol. (c) Sugar molecules dissolve in gaps between water molecules → no significant rise in water level.
17.
Sol. (a) Lustre = shiny appearance. Among the options, silk has natural lustre; cotton and jute are dull.
18.
Sol. (d) Atmosphere contains 78% nitrogen, 21% oxygen, <1% other gases.
19.
Sol. (a) Threshing = beating stalks to separate grains. (Winnowing separates grains from husk, not stalks).
20.
Sol. (d) Camphor sublimates (solid → gas). Sand, sugar, salt do not sublime.

PART - IV : BIOLOGY

1.

Sol. (b) Blood test

Malaria parasites (Plasmodium) are detected in blood smears/rapid blood tests.

2

Sol. (c) Iron

Iron (a mineral, not a vitamin) increases haemoglobin and helps treat/prevent anaemia—hence “increasing blood.”

3.

Sol. (b) Organic farming

Farming without synthetic chemicals/pesticides/fertilisers is called organic farming.

4.

Sol. (c) Less wildlife

Deforestation destroys habitats biodiversity declines; it also causes soil erosion and reduced rainfall, but among options, “less wildlife” fits best.

5.

Sol. (c) Honey and wood

These are common forest product (non-timber and timber products).

6.

Sol. (b) Tongue

Taste buds (papillae) are located on the tongue.

7.

Sol. (a) Mouth and stomach

The food pipe (oesophagus) carries food from mouth to stomach.

8.

Sol. (a) Both A and R true, and R explains A

Coconuts float due to the fibrous husk; currents carry them to new shores where they can germinate.

9.

Sol. (c) Only 3

(1) Owls see well at night — true.

(2) Tigers scent-mark with urine — true.

(3) Humans can hear from very far distances like whales — false; whales' low-frequency sounds travel far underwater, but humans can't hear such distant sounds unaided.

10.

Sol. (d)