



SCIENCE APTITUDE TEST

CLASS - 8

SOLUTIONS

TEST CODE - 05

WhatsApp Channel



Result will be Declared on 14th Oct. 2025

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ALKAPURI (H.O.) : UG – 1 to 2, Concorde Complex, Above PNB, R.C. Dutt Rd., Alkapuri, Vadodara.

M : 9081062221, 9033063029.

MANJALPUR - IIT ASHRAM : SF-1 TO 12, Kabir Plaza, Beside Kabir Complex, Above IDBI Bank, Infront of Army Camp Manjalpur, Nr. Gupta Hospital, Bhavan's Makarpura Road, Manjalpur . **M : 9033063027 / 9033063028**

ANAND - IIT ASHRAM : 2nd Floor, HR Stone Building, Beside Croma Showroom, A.V. Road, Nr. Town Hall, Anand. **M: 9227777098, 8460009041.**

Bhayli - IIT ASHRAM : Akshar Pavilion, 3rd floor, Tower A, Nilamber Circle, Main rd, Bhayli, Vadodara, Gujarat 391410. **M : 6358891896, 9081062221**

PART - I : MENTAL ABILITY

1.

Sol. (d) 2,1,4,3,5

The most logical sequence in terms of constitutional and executive power, starting from the highest, would be President, Vice President, Prime Minister, Speaker, Member of Parliament.

This corresponds to the numerical sequence 2,1,4,3,5

2.

Sol. (b) OCMMNNO

Swap the first two letters 'CO' to 'OC'. Swap the first two letters of the remaining 'MMON' to 'MM'. Swap the last two letters of the remaining 'ON' to 'NO'.

The coded word for COMMON is OCMMNNO.

3.

Sol. (a) 7

The given venn diagram:

Thus, 7 cricketers are dancers as well as cyclists.

4.

Sol. (b) 216

$$5 - 4 = 1 \text{ so, } 1^3 = 1$$

$$7 - 3 = 4 \text{ so, } 4^3 = 64$$

$$11 - 8 = 3 \text{ so, } 3^3 = 27$$

$$8 - 2 = 6 \text{ so, } 6^3 = 216$$

5.

Sol. (b) TSEVO

According to the question, rearrange the jumbled letters to make meaningful words:

Option 1) DOGL → GOLD

Option 2) TSEVO → STOVE

Option 3) ENZROB → BRONZE

Option 4) LVREIS → SILVER

GOLD, BRONZE, SILVER are metals but STOVE isn't a metal. Thus, STOVE is different among the given words.

Hence, "Option 2" is the correct answer.

6.

Sol. (d) Veil

Veil is a piece of fabric worn to cover the face but cap, turban, helmet are worn to cover the head.

7.

Sol. (a) The letter "M"

It appears once in "minute," twice in "moment," and not at all in "thousand years."

8.

Sol. (d) Word: NUCLEAR

Water image = reversed vertically, letters inverted.

9.

Sol. (b) 30

By carefully counting visible and hidden cubes, total = 30.

10.

Sol. (b) 5

As 4 and 6 are adjacent to both 1 and 5.

So, 1 is opposite to 5.

11.

Sol. (b) 20

Carefully counting all small + medium + large triangles = 20 triangles.

12.

Sol. (d) North

Start East

Turn Left → North

Turn Right → East

Turn Left → North

13.

Sol. (c) Brother

My father's wife" is my mother.

Her daughter is my sister.

Sister has two brothers so that's me (Aakash) and the boy in blue

The boy is younger brother of Aakash.

14.

Sol. (a) Only A

D is neither as tall as A nor as short as C.

B is shorter than D but taller than C.

So order is: A (tallest) > D > B > C (shortest).

Mani wants tallest = A.

15

Sol. (a) Grandfather

C (mother of A) = also mother of

B → so A & B are siblings. D is father of

C → D is grandfather of both A and B.

PART - II : MATHEMATICS

1.

Sol. (a) Let x is subtracted from $-\frac{2}{3}$

$$\Rightarrow -\frac{2}{3} - x = -1$$

$$\Rightarrow -x = -\frac{1}{3}$$

$$\Rightarrow -x = -1 + \frac{2}{3}$$

$$\Rightarrow x = \frac{1}{3}$$

3.

Sol. (b) Suppose, ABCD is a quadrilateral.

Let angle A is x

Then,

$$\Rightarrow x + 2x + 3x + 4x = 360 \text{ [Angle sum property of quadrilateral]} \quad 10x = 360^\circ$$

$$\Rightarrow x = 36^\circ$$

Hence, the greatest angle is

$$\Rightarrow 4x = 4 \times 36 = 144^\circ$$

2.

Sol. (a) Let the three consecutive integers be

$$\Rightarrow x, x + 1, x + 2$$

$$\Rightarrow x + (x + 1) + (x + 2) = 51$$

$$\Rightarrow 3x + 3 = 51$$

$$\Rightarrow 3x = 51 - 3$$

$$\Rightarrow x = \frac{48}{3} = 16$$

$$\Rightarrow x + 1 = 16 + 1 = 17, x + 2 = 16 + 2 = 18$$

4.

Sol. (b) 9801

9801 is a perfect square.

$$9801 = 99 \times 99 = 99^2$$

5.

Sol. (a) 3

$$243 \times 3 = 729$$

Hence,

by prime factorisation of 729 we get;

$$729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$$

$$729 = 3^3 \times 3^3 = 9^3$$

6.

Sol. (d) 25 years

Let the ages be $4x$ and $5x$,
 so $4x + 5x = 45$, hence $x = 5$,
 so the older friend is $5 \times 5 = 25$ years old.

7.

Sol. (a) 5Sum of angles in a polygon = $(n-2) \times 180^\circ$.Solving for n : $(n-2) \times 180^\circ = 540^\circ$, $n = 5$

8.

Sol. (a) 3, - 3 $-x^2 - 9 = (x-3)(x+3) = 0$ so $x = 3$ or -3 .

9.

Sol. (b) $18.75 \div 15 = 1.25$

10.

Sol. (b) $x^2 - 4$

Use Identity:

 $(a+b)(a-b) = (x+2)(x-2) = x^2 - 4$.

11.

Sol. (b) Let number = x . Then $0.15x = 30$.

$$\text{So } x = \frac{30}{0.15}$$

$$\text{Compute: } 30 \times \frac{100}{15} = \frac{3000}{15} = 200$$

12.

Sol. (a) Outer area = $50 \times 40 = 2000$

Inner rectangle dimensions

$$= (50 - 2 - 2) \times (40 - 2 - 2) = 46 \times 36 = 1656$$

$$\text{Area of path} = 2000 - 1656 = 344$$

13.

Sol. (b) A polynomial has non-negative integer exponents. $2\sqrt{x} = 2x^{1/2}$ has exponent $1/2$, not an integer, so it is not a polynomial.

14.

Sol. (a) 2Prime factorization: $450 = 2 \times 3^2 \times 5^2$.

Pairs: (2 unpaired). Multiply by 2.

Gives perfect square. 450×2

$$\Rightarrow 2^2 \times 3^2 \times 5^2 = (2 \times 3 \times 5)^2 = 30^2$$

15.

Sol. (c) Possible last digits of perfect squares: 0, 1, 4, 5, 6, 9. So 2 is not possible.

16.

Sol. (b) Compute $a^3 = 3^3 = 27$. $b^3 = (-2)^3 = -8$.

$$\text{So } a^3 - b^3 = 27 - (-8) = 27 + 8 = 35$$

17.

Sol. (b) Move decimal point right 4 places to get 4.5.

So $0.00045 = 4.5 \times 10^{-4}$ (negative exponent because we moved right).

18.

$$\text{Sol. (a)} \quad (\sqrt{81})^2 = 81. \quad (\sqrt{25})^2 = 25.$$

$$\text{Sum} = 81 + 25 = 106$$

19.

Sol. (c)

$$\frac{\sqrt[3]{-2744} \times \sqrt[3]{-216}}{\sqrt[3]{\frac{64}{729}}}$$

According to the question,

$$\frac{\sqrt[3]{-2744} \times \sqrt[3]{-216}}{\sqrt[3]{\frac{64}{729}}}$$

$$\Rightarrow \frac{(-14) \times (-6)}{\left(\frac{4}{9}\right)} \Rightarrow \frac{(84 \times 9)}{4} \Rightarrow \frac{756}{4} = 189$$

The value of euqation is 189

20.

Sol. (a) $(2x-3)^2 = (2x)^2 - 2 \cdot (2x) \cdot 3 + 3^2 = 4x^2 - 12x + 9$

21.

Sol. (c) SP = 750, Loss = 25%
 $\Rightarrow$ CP = $(100/75) \times 750 = 1000$

22.

Sol. (c) (15%-10%) of C.P. article = Rs 20
 5% of C.P. article = Rs 20
 $\Rightarrow$ 1% of C.P. article = 4
 $\Rightarrow$ 100% of C.P. article = Rs 400.

23.

Sol. (b) $y \propto x$
 $y = kx$

$$\therefore \frac{y}{x} = k \quad \therefore k = 7/2 = 3.5$$

$$\Rightarrow y = 3.5 \times 5 = 17.5$$

24.

Sol. (b) Time $\times$ Workers = k $\rightarrow 8 \times 12 = 96$
 $\Rightarrow$ Time for 12 workers = $96 / 12 = 8$ days

25.

Sol. (a) Filling rate inversely proportional to time
 $\rightarrow 1/12 + 1/8 = 5/24$
 $\rightarrow$ Time = $24/5 = 4.8$ h

26.

Sol. (b) Range = Maximum - Minimum = $15 - 3 = 12$

27.

Sol. (b) Angle = $15/60 \times 360^\circ = 90^\circ$

28.

Sol. (c) The sum of frequencies
 = total number of observations.

29.

Sol. (a) Square has equal sides (like rhombus) and all right angles (like rectangle).

30.

Sol. (a) Sum of two numbers in the form p/q and r/s:
 $\frac{p}{q} + \frac{r}{s} = \frac{ps + rq}{qs}$ (rational)

PART - III : PHYSICS & CHEMISTRY

1. **Sol. (a)** Guitar is a string and Tabla a membrane instrument. In flute air column vibrates and in bicycle the metal sheet forming the bell vibrates to produce sound
2. **Sol. (b)** Time for sound to travel to cliff
 $t_1 = \text{distance} / \text{speed} = 700 / 300 = 2.33 \text{ s}$
 Distance car covers in this time
 $d = \text{speed} \times \text{time} = 50 \times 2.33 = 116.7 \text{ m}$
 New distance between car and cliff
 $= 700 - 116.7 = 583.3 \text{ m}$
 Relative speed $= 300 + 50 = 350 \text{ m/s}$
 Time for sound to return to car
 $t_2 = \text{distance} / \text{relative speed}$
 $= 583.3 / 350 = 1.67 \text{ s}$
 Total time $= t_1 + t_2 = 2.33 + 1.67 = 4.0 \text{ s}$
3. **Sol. (c)** Pressure is defined as force per unit area or $P = F / A$
 We multiply both sides of the equation by the area to solve for the force as
 $F = P A$
 $F = (300 \text{ Pa}) (0.5 \text{ m}^2)$
 $F = 150 \text{ N}$
4. **Sol. (d)** (i) Gymnast uses coarse powder to increase friction for better grip.
 (ii) Shoe laces stay tied due to friction.
 (iii) Brakes work due to friction between brake pads & wheel.
 (iv) Writing with chalk is possible due to friction between chalk & board.
 All four are useful cases.
5. **Sol. (c)** Pressure in river vs seawater
 Let Pressure at depth h be p . Then p is
 $p = p_{\text{atm}} + \rho g h$
 since the density of seawater $>$ density of river water
 $\therefore p_2 > p_1$
6. **Sol. (c)** Initial object distance $= 2 \text{ m} \rightarrow$ image also forms 2 m behind mirror.
 After shifting object 0.5 m away, new distance $= 2.5 \text{ m}$.
 Image will also be 2.5 m behind mirror.
 So object-image distance $= 2.5 + 2.5 = 5 \text{ m}$.
7. **Sol. (b)** The Moon rotates on its axis once in the same time it orbits Earth (~ 27.3 days). This is called synchronous rotation or tidal locking.
8. **Sol. (d)** Air comes out of the balloon in direction Z and applies force in opposite direction – Y direction.
 Therefore push force is applied in one direction (say Y). Frictional force always acts opposite to the direction of motion (say Z).
 So Both A and B are correct
9. **Sol. (a)** The up thrust depends only on the weight of the fluid displaced, not directly on the body's mass or total volume of the object (unless fully submerged). And it does not depend upon the volume of the liquid present.
10. **Sol. (a)** To obtain a virtual, erect and enlarged image of an object with a concave mirror the object should be placed between focus and pole.
11. **Sol. (b)** The bulb glows because Q allows electricity to pass, but no products are formed since metals conduct by free electrons, not by ions.
12. **Sol. (b)** The dark zone of a flame has unburnt wax vapors. These vapors pass through the tube and catch fire at the other end, producing a flame.

13.

Sol. (a) Since P displaces R from its salt, $P > R$.
No reaction in I and II shows $Q > T > P$.
With acid test, P and R are above hydrogen, S below. Thus, order is $Q > T > P > R > H > S$.

14.

Sol. (c) Fuel used = $2.0 \text{ kg/h} \times 3 \text{ h} = 6.0 \text{ kg}$.
Useful energy
= $6.0 \text{ kg} \times 45,000 \text{ kJ/kg} \times 0.35$
= 94,500 kJ.

15.

Sol. (a) CO_2 traps outgoing infrared heat from Earth, preventing some heat from escaping.
So both statements are true and statement 2 explains statement 1

16.

Sol. (d) Terylene and PET are polyesters, and Nylon (i) is a polyamide.

17.

Sol. (c) Water gas ($\text{H}_2 + \text{CO}$) is formed when steam passes over red-hot coke. It is a mixture of hydrogen and carbon monoxide.

18.

Sol: (d) Ignition temperature is the minimum temperature at which a substance catches fire on its own.

19.

Sol. (c) Galvanization coats iron with zinc to prevent rusting.

20.

Sol. (b) Naphthalene balls from coal tar are used as moth repellents.

PART - IV : BIOLOGY

1.
Sol. (a) The hoe is a primary agricultural tool designed for removing weeds and loosening soil.
2.
Sol. (b) Mustard is a Rabi crop, sown in winter and harvested in spring, unlike Kharif crops which are monsoon-dependent.
3.
Sol. (b) Yeast is a single-celled fungus used in fermentation, distinct from protozoa, viruses, and bacteria.
4.
Sol. (b) Malaria is caused by the Plasmodium parasite, a protozoan transmitted via mosquito vectors.
5.
Sol. (b) Cholera is a communicable disease caused by bacterial infection, contrasting with non-communicable diseases like diabetes or cancer.
6.
Sol. (b) Wildlife sanctuaries prioritize protecting animals in their natural habitats with regulated human presence.
7.
Sol. (a) The Red Data Book (IUCN) systematically catalogs endangered species and their conservation status.
8.
Sol. (b) Deforestation reduces CO₂ absorption by trees and often involves burning, increasing atmospheric carbon dioxide.
9.
Sol. (b) Leguminous crops host nitrogen-fixing bacteria in root nodules, enhancing soil fertility naturally.
10.
Sol. (d) External fertilization exposes gametes and offspring to environmental hazards and predation due to lack of protection.