



# UDAAN

A QUEST FOR SCIENCE ASPIRANTS

## SCIENCE APTITUDE TEST

# CLASS 5

### ANSWER KEY WITH SOLUTIONS

DATE : 05.01.25

**IIT Ashram**  
IIT JEE | NEET | GUJCET | FOUNDATION (6 to10)



**Drs' Ashram**  
IIT JEE | NEET | GUJCET | FOUNDATION (6 to10)

HO : UG-1 & 2, Concorde Complex, Above PNB Bank, R. C. Dutt Road, Alkapuri, Vadodara - 390 007. M.: 90330 63029 / 98980 35772

**MANJALPUR** - 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 : 9033063024 / 9033063027**

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

**Bhayli** : Akshar pavilion, 3 rd floor, tower A, nilamber circle, main rd, Bhayli, Vadodara, Gujarat 391410.  
**M : 6358891896, 9081062221**

[www.iitashram.com](http://www.iitashram.com) | Email:- [iitashram.2011@gmail.com](mailto:iitashram.2011@gmail.com)

## PART - I : MENTAL ABILITY

1.

Sol. (a)

$$10-5=5$$

$$15-10=5$$

$$20-15=5$$

$$25-20 = 5$$

Hence, the next term would be 25.

2.

Sol. (a)

In the following series one alphabet is skipped in forward direction.

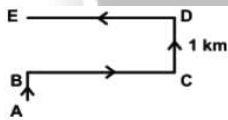
A<sub>B</sub> C<sub>D</sub> E<sub>F</sub> G<sub>H</sub> I

3.

Sol. (b)

4

Sol. (d)



The movements of Ramakant are as shown in figure. Clearly, he is finally walking in the direction. DE i.e West.

5.

Sol: (b)

The correct order is,

Trillion → Billion → Million → Thousand → Hundred.

6.

Sol: (d)

Clearly, a fruit grows on a tree. As given that tree' is called 'sky', a fruit grows on 'sky'.

7.

Sol: (d)

All except trousers are garments that covers the upper part of the body.

8.

Sol: (d)

9.

Sol: (b)

Pattern:

$$2-1=1$$

$$4-2=2$$

$$7-4=3$$

$$11-7=4$$

$$16-11=5$$

Hence, the next term would be 11.

10.

Sol: (d)

In the following series three letters are skipped in forward direction.

$$J_{KLM} N_{OPQ} R_{STU} V_{WXYZ}$$

11.

Sol: (b)

Word made by this arrangement is 'POLICE'.

12.

Sol: (b)

$$9 \rightarrow T, 7 \rightarrow E, 7 \rightarrow E, 4 \rightarrow W, 5 \rightarrow Z, 2 \rightarrow S$$

13.

Sol: (c)

Oil comes from seed and butter from milk.

14.

Sol: (a)

15.

Sol: (d)

Soap is used for washing clothes. Here, soap is called ink. Therefore, Ink is used for washing clothes.

## PART - I : MATHEMATICS

1.

Sol. (a)

$$1 \text{ m} = 0.001 \text{ km}$$

$$\therefore 5 \text{ m} = 0.005 \text{ km}$$

2.

Sol. (a)  $23 \times 153 = 3519$ 

3.

Sol. (a)

$$\frac{7}{12} = \frac{7 \times 2}{12 \times 2} = \frac{14}{24} \quad \therefore \frac{14}{24} < \frac{16}{24}$$

4.

Sol. (a) An equilateral triangle is a triangle that has all its sides equal in length.

5.

Sol. (a) A line segment has two end points.

6.

Sol. (d)  $\frac{7}{2} = \frac{7 \times 3}{2 \times 3} = \frac{21}{6}$ 

7.

Sol. (c) The greatest negative integer is (-1).

8.

Sol. (c) Two fractions are equivalent if their cross multiplication are equal.

9.

Sol. (a)  $2.3 > 2.05 > 2.03$ .

10.

Sol. (a)

$$\ell = 4 \text{ cm}$$

$$b = 2 \text{ cm}$$

$$\text{Area of rectangle} = \ell \times b = 4 \times 2 = 8 \text{ cm}^2$$

11.

Sol. (b)

$$1 \text{ cm} = 10 \text{ mm.}$$

12

Sol: (a)

An angle whose measure is less than  $90^\circ$  is called an acute angle.

13.

Sol: (b)

$$\frac{4}{1000} = 0.004$$

14.

Sol: (b)

A fraction whose numerator is greater than denominator is called an improper fraction.

15.

Sol: (a)

Opposite of 6 km north is 6 km south

16.

Sol: (c)

$$250 \div 50 = 5$$

17.

Sol: (c)

Dividend = (Divisor + Quotient) + Remainder

18.

Sol: (b)

Successor of  $(-79) = (-79) + 1 = (-78)$

19.

Sol: (a)

A pentagon has 5 sides.

20

Sol: (b)

21

Sol: (c)

22.

Sol: (b)

$$1 \text{ cm} = 0.01 \text{ m}$$

23.

Sol: (a)

side = 5 cm

$$\text{Area of square} = \text{side} \times \text{side} = 5 \times 5 = 25 \text{ cm}^2$$

24.

Sol: (c)

2kg 5 gram

25.

$$\text{Sol: (d)} = 2 \text{ kg} + 0.005 \text{ kg} = 2.005 \text{ kg}$$

26.

Sol: (a)

A triangle has 3 vertices

27.

Sol: (b)  $(-12) + 8 = (-4)$ 

28.

Sol: (b)

29

Sol: (a)

 $\overline{AB}$  (or line AB) has no end points.

30.

Sol: (c)

 $625 \times 12 = 7500$ **PART - III : PHYSICS & CHEMISTRY**

1.

Sol. (b)

The revolution period of a planet depends on its distance from the Sun.

Planets closer to the Sun have shorter orbital periods (revolution periods) because the gravitational force is stronger, making them move faster in their orbits.

Since Planet X is closer to the Sun than Planet Y, Planet Y will take longer to complete one revolution around the Sun.

Rotation period refers to the time a planet takes to spin once on its axis, and it is not directly related to its distance from the Sun.

2.

Sol. (a)

A screw is a simple machine that resembles a nail with grooves or threads cut into it. "A simple machine is a mechanical device that changes the direction or magnitude of a force to make work easier. It typically has few or no moving parts

3.

Sol. (a)

A pulley is mainly used to lift objects off the ground by exerting an upward force. This upward force works against the gravitational force, which pulls the object downward.

4.

Sol. (b)

The spectrum of white light, when passed through a prism, is split into seven distinct colors. These colors are: Red, Orange, Yellow, Green, Blue, Indigo, Violet

5.

Sol. (b)

The velocity of light in a vacuum is approximately  $3 \times 10^8$  meters per second (m/s). This is a fundamental constant in physics denoted by  $c$ .

6.

Sol: (a)

If a boy's position remains unchanged in relation to his surroundings, he is considered to be at rest, meaning he is not in motion relative to the objects around him.

7.

Sol: (b)

Rahul and Ravi start at the same point and reach the same destination at the same time. If Rahul follows a longer path (marked as path 1) and they both reach the destination at the same time, it implies that Rahul must be running faster than Ravi, who follows a shorter path (path 2). Thus, Rahul covers a longer distance in the same amount of time, meaning his speed is higher than Ravi's.

8.

Sol: (a)

Objects fall to the ground because gravity pulls them down

9.

Sol: (c)

Lubrication is needed to reduce friction between moving parts in machines, which helps them work smoothly and prevents wear and tear.

10.

Sol: (d)

A fast-moving motorbike primarily converts the chemical energy of fuel into kinetic energy, which allows it to move

11.

Sol: (d)

Burning as it is a chemical change and during chemical changes new substances are formed.

12.

Sol: (a)

A glass of water fit for drinking is potable water.

13.

Sol: (c)

In early morning the temperature is lower so the water vapour around the grass condenses to tiny water drops.

14.

Sol: (c)

The envelope of air that surrounds the earth is known as atmosphere.

15.  
Sol: (a) Water contains air, when we heat the water the air inside the water gets high kinetic energy and escape as bubbles.
16.  
Sol: (b) The ozone layer protects us from harmful ultraviolet rays.
17.  
Sol: (b) Our body becomes cool because sweat absorbs heat from our body for evaporation.
18.  
Sol: (b) The electric charge of electron is negative.
19.  
Sol: (d) The temperature at which a solid changes into its liquid form is called melting point.
20.  
Sol: (d) all of these are fossil fuels as they are obtained from dead remains of plants and animals



**PART - IV : BIOLOGY**

1.  
Sol: (a) Lizards.  
Some animals have the unique ability to see in different directions at the same time due to the way their eyes are structured and positioned.  
Many lizards, such as chameleons, can move their eyes independently of each other. This allows them to look in two different directions simultaneously, providing a wide field of vision. This adaptation helps them spot predators and prey more effectively.  
For example, a chameleon can look forward with one eye and backward with the other.
2.  
Sol: (d) All of these.  
Animals sleep for multiple reasons, which include:  
Taking Rest:  
Sleep allows the body to recover from physical exertion, reduce muscle fatigue, and heal any minor injuries sustained during the day.  
Regaining Energy:  
During sleep, the body conserves energy by reducing metabolic activity. This allows animals to recharge and prepare for the next day's activities.  
Regulating Body Temperature:  
Sleep helps regulate body temperature by allowing the body to perform thermoregulatory processes, which are especially important for warm-blooded animals.



3.

Sol: (c)

The Corbett National Park, originally known as Hailey National Park, is located in the state of Uttarakhand, India. It is the oldest national park in India, established in 1936 to protect the endangered Bengal tiger under the Project Tiger initiative.

4.

Sol: (d)

Both spiders and cockroaches use hairs on their legs for sensory purposes. These hairs act as mechanoreceptors, enabling them to detect environmental changes, such as vibrations, air currents, and touch stimuli. This capability is crucial for their survival in their respective environments.

5.

Sol: (b) Flower

Role of the Flower in Plant Reproduction:

Flowers are the reproductive structures of flowering plants, including papaya.

In papaya plants, flowers contain the reproductive organs: stamens (male) and carpels (female).

Fertilization occurs when pollen from the male flower fertilizes the ovules in the female flower, leading to the formation of seeds and fruits.

If Flowers (Y) are Absent:

Without flowers, the plant cannot carry out sexual reproduction.

Consequently, no seeds or fruits will be produced, and the plant will not be able to propagate.

6.

Sol: (a) Mustard

Mustard is a versatile crop used both as an oilseed and a spice.

7.

Sol: (b) Mouth

The mouth is the starting point of the digestive system.

When food enters the mouth, it undergoes mechanical digestion (chewing) and chemical digestion.

Saliva, produced by the salivary glands, contains enzymes like amylase that begin breaking down carbohydrates into simpler sugars.

8.

Sol: (c) As we cannot smell the food and 90% of taste comes from its smell.

Taste and Smell Connection:

The perception of taste involves not just the tongue but also the sense of smell.

The tongue detects five primary tastes: sweet, sour, salty, bitter, and umami.

However, most of the flavor we perceive comes from our sense of smell.

How Cold Affects Smell:

When you have a cold, your nasal passages may be blocked due to mucus or inflammation.

This prevents odor molecules from reaching the olfactory receptors in the nose.

As a result, the brain cannot receive the full flavor signals.

9.

Sol: (b) iii, iv, vi, and vii

In India, crops are categorized as Kharif crops and Rabi crops based on the season in which they are grown:

Kharif crops: Sown at the beginning of the monsoon (June-July) and harvested in September-October. Examples include rice, millet, soybean, and cotton.

Rabi crops: Sown after the monsoon (October-November) and harvested in March-April. Examples include mustard, gram, radish, and cauliflower.

Given options:

Radish (i): A Rabi crop (grown in winter).

Mustard (ii): A Rabi crop.

Rice (iii): A Kharif crop.

Millet (iv): A Kharif crop.

Gram (v): A Rabi crop.

Soybean (vi): A Kharif crop.

Cotton (vii): A Kharif crop.

Cauliflower (viii): A Rabi crop.

Correct combination of Kharif crops:

Rice (iii), Millet (iv), Soybean (vi), and Cotton (vii).

10.

Sol: (b) Ingredients

Ingredients are the materials required to prepare a food item. These are the raw components used to make a dish, such as flour, sugar, and eggs for a cake or rice, vegetables, and spices for biryani.

The term "ingredients" specifically refers to the components listed in a recipe or used in cooking.