



SCIENCE APTITUDE TEST

CLASS 6

ANSWER KEY WITH SOLUTION

IIT Ashram
JEE MAIN | JEE ADVANCED | GUJCET | FOUNDATION



Drs' Ashram
NEET | GUJCET | FOUNDATION

Vasna - Bhayli Branch : Akshar Pavilion,
3rd Floor, Tower A, Vasna Bhayli Road, Gotri
Opp. Bhyali TP - 1 Vadodara - 390021

Manjalpur Branch : SF-1 TO 12, Kabir Plaza,
Beside Kabir Complex, Above IDBI Bank, Manjalpur,
Vadodara - 390010 .

Anand Branch : 2nd Floor, HR Stone Building,
Beside Croma Showroom, A.V. Road, Nr. Town Hall,
Anand.

www.iitashram.com | Email :- iitashram.2011@gmail.com

ALKAPURI
9081062221 / 9033063029

VASNA-BHAYLI
6358891896 / 9081062221

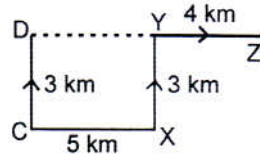
MANJALPUR
9033063027 / 9033063028

ANAND
9227777098 / 8460009041

PART - I : MENTAL ABILITY

1.

- Sol. (b)** The movement of A from X to Z (X to Y, Y to Z) and the movement of B from X to D, (X to C, C to D) as shown in figure. Clearly, required distance $ZD = (YD + YZ) = (XC + YZ) = (5 + 4) = 9$ km.



2.

Sol. (c)

3.

- Sol. (c)** This series consists of increasing numbers.
The pattern is $+4, +6, +8, +10, \dots$
Hence, the next term would be $29 + 10 = 39$

4.

- Sol. (a)** Moving clockwise, in every quarter region, value of numbers gets doubled.
 $2 \times 2 = 4, 8 \times 2 = 16, 16 \times 2 = 32, 32 \times 2 = 64, 128 \times 2 = 156$

5.

- Sol. (d)** First, second, third, letters is moved two, three, four, five, steps forward respectively. So, the missing terms would be J.

6.

- Sol. (a)** Series is $\underline{c} h a / \underline{c} h a / \underline{c} h a / \underline{c} h a$. So, pattern cha is repeated.

7.

- Sol. (b)** The first, the second, the fourth, the fifth and sixth letters of the word CONTRACT are C, O, T, R and A respectively. The meaningful word will be ACTOR and T will be the required letter.

8.

Sol. (a)

9.

- Sol. (c)** Given expression $= 23 \times \frac{522}{87} - 28 = 23 \times 6 - 28 = 138 - 28 = 110$

10

- Sol. (c)** 3

11.

- Sol. (b)** 6

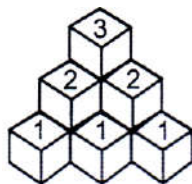
12.

Sol. (c) 1

13.

Sol. (d) 'Oar' is a device used to push a 'Boat'. Likewise 'Paddle' is used to push the 'Bicycle'.

14.

Sol. (b)

The number of cubes in given figure are $= 1 \times 3 + 2 \times 2 + 3 \times 1 = 10$

15.

Sol. (b) Clearly, the whole class consists of:

(i) 6 students who have ranks higher than Rohan :

(ii) Rohan ; and

(iii) 25 students who hav ranks lower than Rohan, i.e., $(6 + 1 + 25) = 32$ students.**or**

Total number of students = [Position of Rohan from top + position of Rohan from bottom] - 1
 $= [7 + 26] - 1 = 32$

PART - II : MATHEMATICS

1.

Sol. (b) 10

2.

Sol. (d) has exacty two factor, by definition of prime numberal.

3.

Sol. (b)

4.

Sol. (c) Smallest 4-digit number is 1000 and 1000 is equal to M in roman number.

5.

Sol. (a) Number of obtuse angle be 110° , 95° , 140° , 190°

6.

Sol. (c) $0 \times 170 = 0$

7.

Sol. (b) In square diaganals are equal and besect each other at 90° .

8.

Sol. (d) Seven point three five

9.

Sol. (c) $\frac{x}{4} + y$

10.

Sol. (a) Because like them have same value raised to the same power.

11.

Sol. (c) $\frac{5}{120} = \frac{40}{\text{Fourth term}}$ So Fourth term = 960

12.

Sol. (c) $\frac{250 \text{ mL}}{2L} = \frac{250 \text{ mL}}{2 \times 100 \text{ mL}} = \frac{1}{8}$

13.

Sol. (b) - 100

14.

Sol. (c) $A > B$

15.

Sol. (b) Area of room = $\frac{16200}{90} = 180 \text{ m}^2 \Rightarrow 15 \times b = 180 \Rightarrow b = \frac{180}{15} = 12 \text{ m}$

16.

Sol. (d) $1 \text{ km} = 1000 \text{ m} = 1000 \times 100 \text{ cm [b- breadth]} = 100000 \text{ cm}$

17.

Sol. (b) $5\frac{1}{30} \Rightarrow 1\frac{2}{5} + 3\frac{5}{6} = \frac{1}{5} \Rightarrow \frac{7}{5} + \frac{23}{6} = \frac{1}{5} \Rightarrow \frac{42+115-6}{30} = \frac{151+36}{30} = 5\frac{1}{30}$

18.

Sol. (d) $19 = \text{XIX}$

19.

Sol. (c) 18

20.

Sol. (d) Perimeter of square = $4 \times \text{side} \Rightarrow 4 \times 5 = 20 \text{ cm}$

21.

Sol. (b) Numbers are co-prime if they have common factor 1.

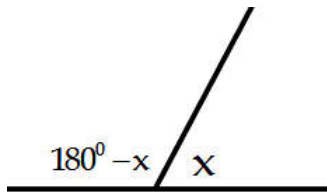
22.

Sol. (a) $35 = 5 \times 7$

23.

Sol. (a) $\frac{11}{4} = \frac{77}{x} \Rightarrow x = 28$

24.

Sol. (b) 425. **Sol:** (a) 120° 

$$x = 2(180^\circ - x)$$

$$x = 360^\circ - 2x$$

$$3x = 360^\circ$$

$$x = 120^\circ$$

26. **Sol:** (a) Rs. 69.30

cost of one meter cloth = Rs 24.75

cost of 2.8m of cloth = 24.75×2.8

= Rs 69.30

27. **Sol:** (b) greater than28. **Sol:** (c) $14\frac{1}{7}$

$$10\frac{2}{7} \times \left(\frac{3}{4} + \frac{5}{8}\right)$$

$$= \frac{72}{7} \times \left(\frac{6+5}{8}\right)$$

$$= \frac{72}{7} \times \frac{11}{8} = \frac{99}{7} = 14\frac{1}{7}$$

29. **Sol:**(c) 0.001 km

$$1 \text{ m} = \frac{1}{100} \text{ km} \quad [\because 1 \text{ km} = 1000 \text{ m}]$$

$$= 0.001 \text{ km}$$

30. **Sol:**(c) 8 m

$$\text{Area} = (\text{side})^2$$

$$64 = (\text{side})^2$$

$$8 = \text{side}$$

PART - III : PHYSICS & CHEMISTRY

1.
Sol. (a) Displacement is the shortest distance travelled from the initial point to the final point.
Here initial point is A and Final point is also the same. Hence shortest distance between initial to final is 0 meter.
2.
Sol. (a) Periodic motion is means that motion which keeps repeating itself after equal time intervals.
3.
Sol. (b) Solar eclipse occurs on a new moon day when the moon is in between the earth and the sun. An observer on the earth can not see Moon because its illuminated part is facing away from us.
4.
Sol. (c) Group of stars in the sky, usually named after some object, animal, or mythological being that it supposedly resembles or suggests is called Constellation
5.
Sol. (d) When two like poles face each other, they will repel. When repulsion is detected, it can be concluded that both items are magnets. When attraction is detected, it can only be concluded that either one of the items is a magnet and not necessarily both.
6.
Sol. (b) Change in the direction of the current flowing in the wire, the north and south poles gets reversed but it do not change the strength of electromagnet.
To change strength following things can be done:
 - 1) By increasing the number of turns of wire in the coil.
 - 2) By increasing the current flowing the coil
 - 3) By inserting soft iron inside the coil.
7.
Sol. (c) Above symbol indicates a switch. The function of switch in an electric circuit is to either make or break the electric circuit. A switch is used to turn current to an electrical appliance either on or off.
8.
Sol. (b) Pure water is also known as distilled water. After the distillation pure water is obtained. In pure water there are no extra ions to conduct the electricity hence it is Insulator. Ions which are responsible for the electrical conductivity of are present in tap water.
9.
Sol. (d) Lateral inversion is the phenomenon due to which left-hand side of an object appears as the right-hand side of the image and vice versa in a plane mirror.
The left side and right side of the alphabet W are the same, that's why the lateral inversion is not observed.
10.
Sol. (c) Force is defined as the push or pull on an object which may cause it to change the state of motion of the object. Some examples of force are gravitational force, Frictional force, magnetic force, electrostatic force etc...

11.

Sol. (b) Solids of different sizes (Explanation: Winnowing is used to separate solid particles of different sizes.)

12.

Sol. (a) Oxygen (Explanation: Rusting of iron is a result of the reaction between iron and oxygen.)

13.

Sol. (c) Methane (Explanation: Methane is the primary component of biogas.)

14.

Sol. (c) Air is a mixture of different gases

15.

Sol. (c) Burning wood (Explanation: Burning is a chemical change as it involves a chemical reaction between wood and oxygen.)

16.

Sol. (b) Sublimation (Explanation: Sublimation is the process of a solid turning directly into a gas.)

17.

Sol. (b) Stratosphere (Explanation: The ozone layer is located in the stratosphere.)

18.

Sol. (b) Decantation (Explanation: Separating funnel is used for decantation to separate immiscible liquids.)

19.

Sol. (c) Boiling water (Explanation: Boiling is a physical change as it involves a change in state from liquid to gas.)

20.

Sol. (b) Oxygen (Explanation: Oxygen gas is released during photosynthesis.)

PART - IV : BIOLOGY

1.

Sol. (b)

1. Lamina is the flat and green part of the leaf.
2. Lamina is also called a leaf blade.
3. Photosynthesis occurs in the lamina of the leaf.
4. Lamina contains many linear structures called veins which transport minerals and nutrients to the leaf.
5. Lamina is supported by a thick vein called midrib

2.

Sol. (a) Historians believe that the first cotton clothes were used in Egypt 14,000 years ago. However, the written records indicate that cotton clothing was made in India at least 3,000 years ago.

3.

Sol. (a) Calyx is the outermost whorl of flowers. It is composed of green and leaf-like structures called sepals. Sepals enclose the inner parts of the flower and protect it in the bud stage.

4.

Sol. (a) Desert:

1. A desert is a terrestrial habitat that is very dry and receives very little rainfall annually.
2. Plants that grow in the desert area are known as xerophytes and some examples are cactus, palm trees etc.
3. The leaves of the cactus are modified into spines in order to prevent the loss of water(transpiration) from the surface of the leaves.

5.

Sol. (a) The thigh bone, or femur, is the large upper leg bone that connects the lower leg bones (knee joint) to the pelvic bone (hip joint).

6.

Sol. (d) four bones (2 pair)

The shoulder is made up of two bones: the scapula (shoulder blade), and clavicle (collarbone). Two joints in the shoulder allow it to move: the acromioclavicular joint, where the highest point of the scapula (acromion) meets the clavicle and the glenohumeral joint.

7.

Sol. (a) A tendon is a fibrous connective tissue that attaches muscle to bone. Tendons may also attach muscles to structures such as the eyeball.

8.

Sol. (c) The joint where our neck joins the head is a pivotal joint. It allows us to bend our head forward and backward and turn the head to our right or left. In a pivotal joint, a cylindrical bone rotates in a ring.

9.

Sol. (b) The bending of plant towards light is known as phototropism. It is due to plant hormone auxins.

10.

Sol. (a) Aquatic adaptation:

1. Fishes belong to the category of Pisces while whales belong to the category of mammals.
2. Both the whales and the fishes have a streamlined body and fins.
3. Fins help with swimming underwater and changing directions.
4. The streamlined body helps move through water without the viscous drag.

Desert adaptation:

A cactus has special adaptations in its roots, leaves as well and stems that enable it to thrive in desert environments. These adaptations include: Leaves are reduced to spines to reduce water loss through transpiration. Wide and deep roots absorb rainwater on the surface and reach the underground deep water.

Mountain habitats are present in higher altitudes and they have harsh environmental conditions. Snow leopards, goats, and yaks are found in this habitat. Polar bears and penguins do not belong to the mountain habitat, they belong to the polar habitat.

Hydrilla, (*Hydrilla verticillata*), submerged aquatic plant that is the sole member of the genus Hydrilla in the frog's-bit family (Hydrocharitaceae). Hydrilla is possibly native to Africa or Europe but has naturalized in lakes and streams around the world.

