



SCIENCE APTITUDE TEST CLASS - 9 SOLUTIONS

EXAM DATE : 11.10.26

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PART - I : MENTAL ABILITY

1.

Sol. (d)



2.

Sol. (a) 74561

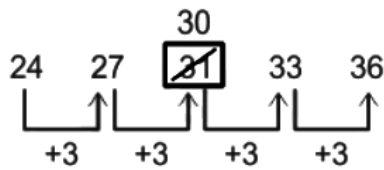
R E D
↓ ↓ ↓
7 4 1

E X I T
↓ ↓ ↓ ↓
4 5 6 2

R E X I D
↓ ↓ ↓ ↓ ↓
7 4 5 6 1

3.

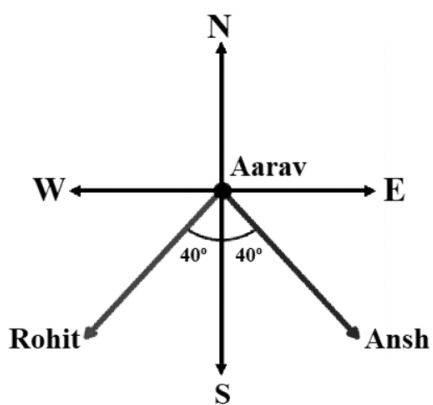
Sol. (c) 31



(Option C)

4.

Sol. (a) East



5.

Sol. (c)



Outer = 6 Sides

Inter = 5 Side

$$6 - 5 = 1$$

6.

Sol. (c) 27

7.

Sol. (d) 74

According to English Alphabet sequence

$$\Rightarrow S(19) + P(16) + E(5) + C(3) + I(9) + A(1) + L(12) = 65$$

$$\Rightarrow C(3) + O(15) + N(14) + N(14) + E(5) + C(3) + T(20) = 74$$

8.

Sol: (c) KPRGU

P K U G R P K U G R P K U G R P K U G R

Option C is correct

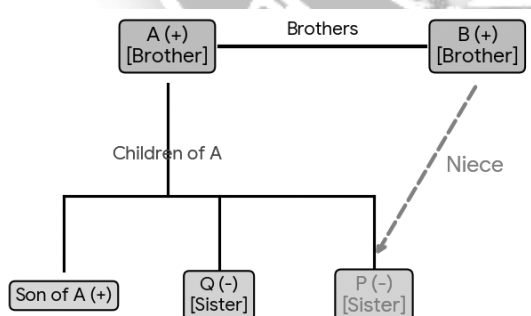
9.

Sol: (b)



10.

Sol: (d) Niece



This mean A is uncle of Q and P

∴ P is niece

Option (d) Niece

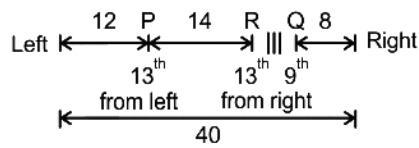
11.

Sol. (c) pppb

pabpabpabpab

12.

Sol. (c) 14



P = 13th from left,

R = 13th from right = $40 - 13 + 1 = 28$ th from leftChildren between P(13th) and Q = (28th) = $28 - 13 - 1 = 14$

13.

Sol. (a) 19,20, 1, 18,5

According to English Alphabet sequence

G	L	O	V	E	S	T	A	R	E
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
7,	12,	15,	22,	5	19,	20,	1,	18,	5

14.

Sol. (d) 82:42

(a) $24:11 \rightarrow 11 \times 2 + 2 = 24$

(b) $48:23 \rightarrow 23 \times 2 + 2 = 48$

(c) $64:31 \rightarrow 31 \times 2 + 2 = 64$

(d) $82:42 \rightarrow 42 \times 2 + 2 = 86 \neq 82$

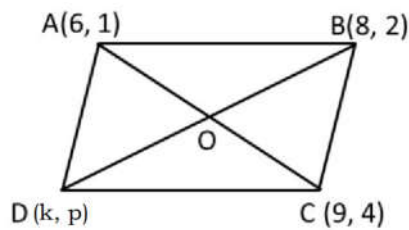
15.

Sol. (c) Friday

Jan 1, 2006 $\rightarrow$ SundayJan 1, 2007 $\rightarrow$ Sunday + 1 = MondayJan 1, 2008 $\rightarrow$ Monday + 1 = TuesdayJan 1, 2009 $\rightarrow$ Tuesday + 2 = ThursdayJan 1, 2010 $\rightarrow$ Thursday + 1 = Friday

PART - II : MATHEMATICS

1.

Sol. (c) $k = 7, p = 3$ 

In parallelogram diagonals bisect each other.

$$\text{Midpoint of AC, } O(x, y) = \left(\frac{15}{2}, \frac{5}{2} \right)$$

$$\text{Mid point of BD, } O(x, y) = \left(\frac{K+8}{2}, \frac{P+2}{2} \right)$$

Midpoint of AC = Mid point of BD

$$\frac{K+8}{2} = \frac{15}{2} \quad \& \quad \frac{P+2}{2} = \frac{5}{2}$$

$$k = 7 \quad \& \quad p = 3$$

2.

Sol. (b) $\sqrt{2\left(x - \frac{1}{x}\right)^2}$

$$\Rightarrow AB = \sqrt{\left(\frac{1}{x} - x\right)^2 + \left(x - \frac{1}{x}\right)^2} \quad [\because (a-b)^2 = (b-a)^2]$$

$$= \sqrt{2\left(x - \frac{1}{x}\right)^2}$$

3.

Sol. (c) $\frac{3}{7}$

Total Days: A leap year has 366 days, which equals 52 weeks and 2 extra days.

Guaranteed Days: The 52 weeks guarantee 52 Fridays and 52 Saturdays. The 53rd Friday or Saturday depends entirely on the 2 extra days.

Total Possibilities: The 2 consecutive extra days can form 7 possible pairs:

(Sunday, Monday)

(Monday, Tuesday)

(Tuesday, Wednesday)

(Wednesday, Thursday)

(Thursday, Friday) (Contains Friday)

(Friday, Saturday) (Contains Friday & Saturday)

(Saturday, Sunday) (Contains Saturday)

Favorable Outcomes: Out of the 7 pairs, 3 pairs contain either Friday or Saturday.

$$\text{Probability} = \frac{\text{Favorable Outcomes}}{\text{Total Outcomes}} = \frac{3}{7}$$

4.

Sol. (a) 3 cm

Now, first determine the area of $\triangle ABC$.

The sides of a triangle are $AB = a = 7.5\text{cm}$ $BC = b = 7\text{ cm}$ and $CA = c = 6.5\text{cm}$

Now, semi-perimeter of a triangle,

$$s = \frac{a+b+c}{2} = \frac{7.5+7+6.5}{2} = \frac{21}{2} = 10.5\text{cm}$$

$\therefore$ Area of $\triangle ABC = \sqrt{s(s-a)(s-b)(s-c)}$ by Heron's formula]

$$= \sqrt{10.5(10.5 - 7.5)(10.5 - 7)(10.5 - 6.5)}$$

$$= \sqrt{10.5 \times 3 \times 3.5 \times 4} = \sqrt{441} = 21\text{cm}^2$$

Now, area of parallelogram BCED = Base x Height

$$= BC \times DF = 7 \times DF$$

According to the question,

Area of $\triangle ABC$ = Area of parallelogram BCED

$$\Rightarrow 21 = 7 \times DF \text{ [from Eqs.(i) and (ii)]} \quad \Rightarrow DF = \frac{21}{7} = 3\text{cm}$$

Hence, the height of parallelogram is 3 cm.

5.

Sol. (c) 36

Given:

$$(a + b + c)^2 = 36$$

$$a^2 + b^2 + c^2 + 2(ab+bc+ca) = 36$$

$$14 + 2(ab+bc+ca) = 36 \Rightarrow 2(ab+bc+ca) = 22 \Rightarrow (ab+bc+ca) = 11$$

$$a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - (ab + bc + ca))$$

$$a^3 + b^3 + c^3 - 3(6) = (6)(14 - 11)$$

$$a^3 + b^3 + c^3 - 18 = 6 \times 3 = 18$$

$$a^3 + b^3 + c^3 = 18 + 18 = 36$$

6.

Sol. (a) 14

$$x = 2 + \sqrt{3}$$

$$\Rightarrow x^2 = 4 + 3 + 4\sqrt{3} = 7 + 4\sqrt{3} \Rightarrow \frac{1}{x^2} = \frac{1}{7 + 4\sqrt{3}} \times \frac{7 - 4\sqrt{3}}{7 - 4\sqrt{3}} = \frac{7 - 4\sqrt{3}}{49 - 48} = 7 - 4\sqrt{3} \Rightarrow x^2 + \frac{1}{x^2} = 14$$

7.

Sol. (d) $^{100}\sqrt{5} < ^{50}\sqrt{2}$

Comparing the given surds:

$$\text{I. } 2^{\frac{1}{3}} > 3^{\frac{1}{5}} \Rightarrow 2^{\frac{5}{15}} > 3^{\frac{3}{15}} \Rightarrow 32^{\frac{1}{15}} > 27^{\frac{1}{15}}$$

$$\text{II. } 5^{\frac{1}{4}} < 3^{\frac{1}{2}} \Rightarrow 5^{\frac{1}{4}} < 3^{\frac{2}{4}} \Rightarrow 5^{\frac{1}{4}} < 9^{\frac{1}{4}}$$

$$\text{III. } 15^{\frac{1}{8}} < 4^{\frac{1}{4}} \Rightarrow 15^{\frac{1}{8}} < 4^{\frac{2}{8}} \Rightarrow 15^{\frac{1}{8}} < 16^{\frac{1}{8}}$$

$$\text{IV. } 5^{\frac{1}{100}} < 2^{\frac{1}{50}} \Rightarrow 5^{\frac{1}{100}} < 2^{\frac{2}{100}} \Rightarrow 5^{\frac{1}{100}} < 4^{\frac{1}{100}} \text{ (This is wrong)}$$

8.

Sol. (d) $32\sqrt{2}\text{cm}^2$ Equal side = $3x$ Base = $2x$ Finding the value of x : $3x + 3x + 2x = 32$

$$\Rightarrow 8x = 32$$

$$\Rightarrow x = 4$$

$$AM^2 = AB^2 - BM^2$$

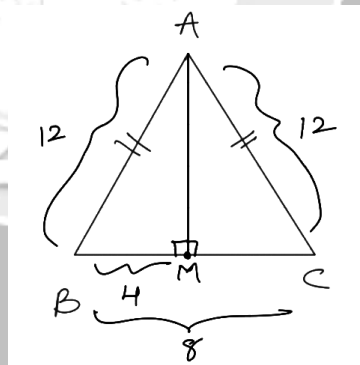
$$AM^2 = 144 - 16$$

$$AM^2 = 128$$

$$AM = \sqrt{128}$$

$$AM = 8\sqrt{2} \text{ cm}$$

$$\text{Area} = \frac{1}{2} \times BC \times AM = \frac{1}{2} \times 8 \times 8\sqrt{2} = 32\sqrt{2} \text{ cm}^2$$



9.

Sol. (c) 25°

$$\text{Let } y = 4k, x = 5k$$

$$4k + 5k = 180^\circ$$

$$9k = 180^\circ$$

$$k = 20^\circ$$

$$y = 4 \times 20^\circ = 80^\circ$$

$$x = 5 \times 20^\circ = 100^\circ$$

$$\angle DAB + 80^\circ = 180^\circ$$

$$\angle DAB = 100^\circ$$

$$Z + 55^\circ + 100^\circ = 180^\circ$$

$$Z + 155^\circ = 180^\circ$$

$$Z = 180^\circ - 155^\circ$$

$$Z = 25^\circ$$

10.

Sol. (b) 124 sq. cm

$$\begin{aligned} \text{Area of all parts} &= (2 \times 16) + (18 \times 2) + (14 \times 2) + (12 \times 2) + (2 \times 2) \\ &= 32 + 36 + 28 + 24 + 4 = 124 \text{ cm}^2 \end{aligned}$$

11.

Sol. (c) 150 cm²

$$\text{Let Base} = 3x, \text{ height} = 4x$$

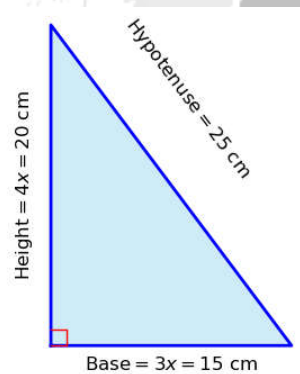
By pythagoras theo.

$$16x^2 + 9x^2 = 625$$

$$\Rightarrow 25x^2 = 625$$

$$\Rightarrow x = 5$$

$$\text{Area} = \frac{1}{2} \times b \times h = \frac{1}{2} \times 20 \times 15 = 150 \text{ cm}^2$$



12.

Sol. (d) 160 cm²

$$\text{Area of Rhombus} = \frac{1}{2} \times d_1 \times d_2 = \frac{1}{2} \times 20 \times 16 = 160 \text{ cm}^2$$

13.

Sol. (d) $3\sqrt{3}$ cm

$$\text{Altitude of Eq. Triangle} = \frac{\sqrt{3}}{2} \times \text{side} = \frac{\sqrt{3}}{2} \times 6 = 3\sqrt{3} \text{ cm}$$

14.

Sol. (c) $(\sqrt{2}-1)r$

Radius of inner circle be R, Outer circle be r.

$$AC = 2r + 2R$$

$$AB^2 + BC^2 = AC^2$$

$$4r^2 + 4r^2 = AC^2$$

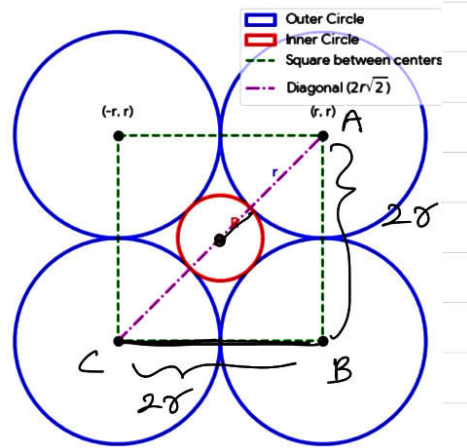
$$AC = 2\sqrt{2} r$$

Equating the two expressions for AC:

$$2r + 2R = 2\sqrt{2} r$$

$$2R = (2\sqrt{2} - 2)r$$

$$R = (\sqrt{2} - 1)r$$



15.

Sol. (a) -1

Let three points are: A(-5,1), B(1,k), C(4,-2)

They are collinear, meaning the slopes between any two pairs of points must be equal.

$$\text{Step 1: Slope of } AC = \frac{(y_2 - y_1)}{(x_2 - x_1)} \Rightarrow m_{AC} = \frac{-2-1}{4-(-5)} = \frac{-3}{9} = -\frac{1}{3}$$

$$\text{Step 2: Slope of } AB = \frac{(y_2 - y_1)}{(x_2 - x_1)} \Rightarrow m_{AB} = \frac{k-1}{1-(-5)} = \frac{k-1}{6}$$

$$\text{Step 3: Set slopes equal for collinearity} \Rightarrow \frac{k-1}{6} = -\frac{1}{3}$$

$$\text{Multiply both sides by 6: } \Rightarrow k-1=-2 \Rightarrow k=-1$$

So the correct value is -1.

16.

Sol. (d) 11

$$3(-3)^2 + k(-3) + 6 = 0$$

$$\Rightarrow 27 - 3k + 6 = 0 \quad \Rightarrow 3k = 33 \quad \Rightarrow k = 11$$

17.

Sol. (c) (k, 2)

(k, 2) in 1st quadrant

18.

Sol. (c) 24Let three consecutive integers are : $x, x+1, x+2$

$$x + x + 1 + x + 2 = 72$$

$$\Rightarrow 3x = 72 - 3 \quad \Rightarrow 3x = 69 \quad \Rightarrow x = 23 \quad \Rightarrow 23, 24, 25$$

Middle integer be $(x+1) = 24$

19.

Sol. (b) 30,000

$$\text{No. of boxes} = \frac{50 \times 20 \times 15}{0.5} = 30,000$$

20.

Sol. (a) $\frac{3}{4}$

$$3x - 4y + 12 = 0 \quad \Rightarrow 4y = 3x + 12 \quad \Rightarrow y = \frac{3x}{4} + 3$$

$$\text{Slope form } y = mx + c \Rightarrow \text{Slope} = \frac{3}{4}$$

21.

Sol. (c) 3 years

$$A = P \left(1 + \frac{r}{100} \right)^n \Rightarrow 1331 = 1000 \left(1 + \frac{10}{100} \right)^n \Rightarrow \frac{1331}{1000} = \left(\frac{11}{10} \right)^n$$

$$\Rightarrow \left(\frac{11}{10} \right)^3 = \left(\frac{11}{10} \right)^n \Rightarrow n = 3$$

22.

Sol. (a) 110, 44Let whole No. are $2x, 5x$

$$\Rightarrow \text{Difference, } 5x - 2x = 66$$

$$\Rightarrow 3x = 66$$

$$\Rightarrow x = 22$$

$$\therefore 2x = 2(22) = 44 \quad \text{and}$$

$$5x = 5(22) = 110$$

23.

Sol. (b) $\frac{1}{x}$

Let $3^x = 4^y = 12^z = k$

$$3 = k^{\frac{1}{x}}, \quad 4 = k^{\frac{1}{y}}, \quad 12 = k^{\frac{1}{z}}$$

Now, $12 = 3 \times 4$

Putting their values $k^{\frac{1}{z}} = k^{\frac{1}{x} + \frac{1}{y}}$

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$$

$$\frac{1}{z} - \frac{1}{y} = \frac{1}{x}$$

24.

Sol. (c) $33\frac{1}{3}\%$

$$\text{Decreasing \%} = \frac{150 - 100}{150} \times 100 = \frac{50 \times 100}{150} = 33\frac{1}{3}\%$$

25.

Sol. (c) 18

81 and 100

82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99 = 18

26.

Sol. (a) 16dm, 8dm, 4dm

Let, $b = 2h$ then $\Rightarrow h = \frac{b}{2}$

$b = \frac{\ell}{2}$ then $\Rightarrow \ell = 2b$

Volume (v) = $\ell \times b \times h$

$$v = 2b \times b \times \frac{b}{2}$$

$b^3 = 512 \text{ dm}^3$

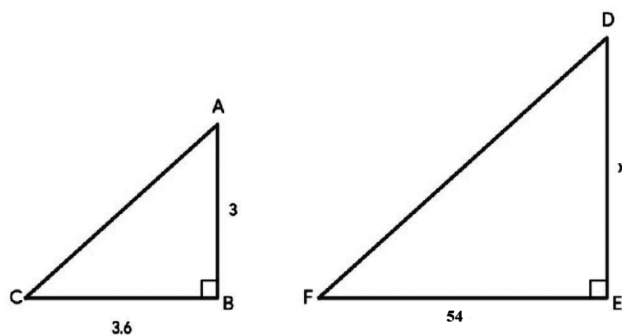
$b = 8 \text{ dm}$

$\ell = 16 \text{ dm}, h = 4 \text{ dm}$

27.

Sol. (c) 45 mLet $\triangle ABC \sim \triangle DEF$ then

$$\frac{AB}{BC} = \frac{DE}{EF} \Rightarrow \frac{3}{3.6} = \frac{x}{54} \Rightarrow x = 45 \text{ m}$$



28.

Sol. (c) 325m²

Area of garden = Area of sq. - Area of Rectangle

$$25 \times 25 - (20 \times 15) = 625 - 300 = 325 \text{ m}^2$$

29.

Sol. (b) 25%

$$Y = 100\% \Rightarrow X = 80\% \Rightarrow \text{Increase \% of } Y = \frac{100 - 80}{80} \times 100\% = 25\%$$

30.

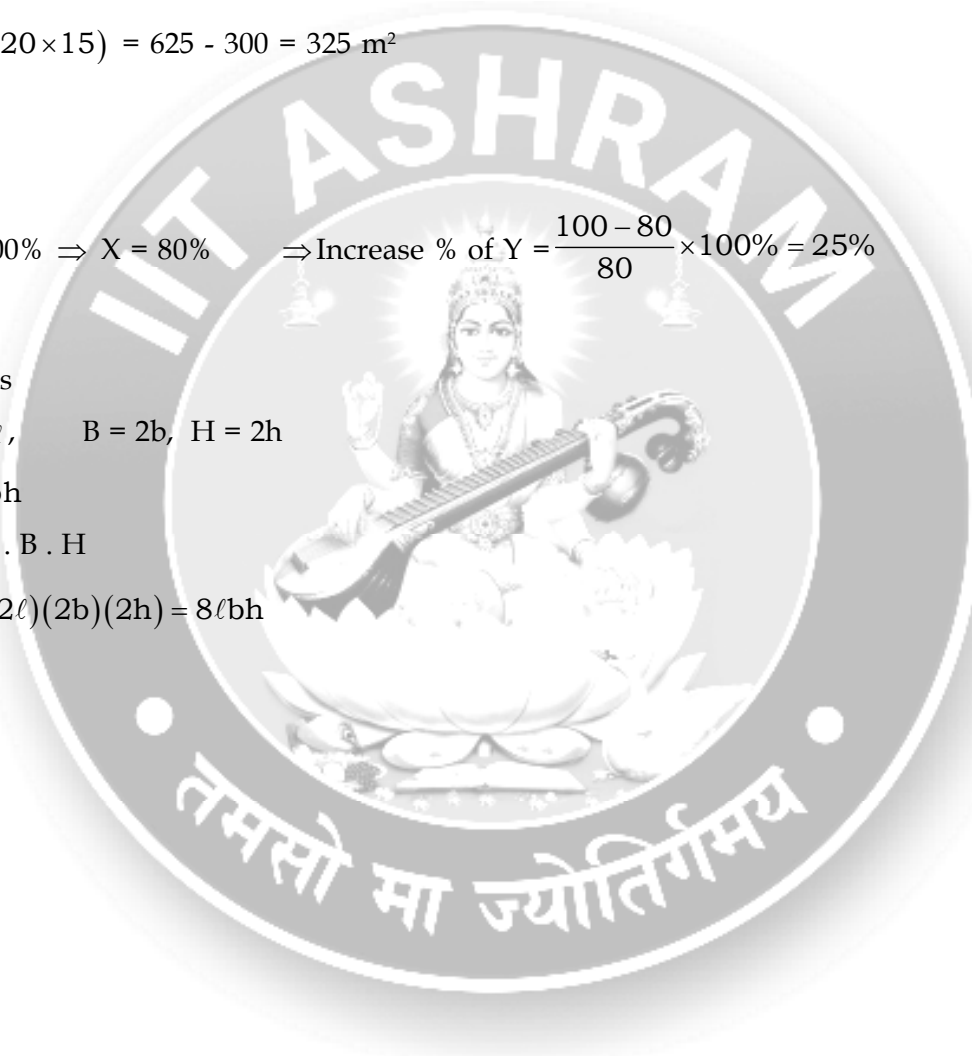
Sol. (d) 8 times

$$L = 2\ell, \quad B = 2b, \quad H = 2h$$

$$v = \ell b h$$

$$v' = L \cdot B \cdot H$$

$$v' = (2\ell)(2b)(2h) = 8\ell b h$$



PART - III : PHYSICS & CHEMISTRY

1.

Sol. (d) 56 m

Let the distance covered by the first body be s_1 and distance covered by the second body s_2

Initial velocity $u_1 = 2 \text{ m s}^{-1}$,

Acceleration $a_1 = 3 \text{ m s}^{-2}$, Time $(t) = 4 \text{ s}$

$$s_1 = u_1 t + \frac{1}{2} a_1 t^2 = (2 \times 4) + \frac{1}{2} (3 \times 4^2) = 8 + 24 = 32 \text{ m}$$

Distance covered by the second body be S_2

Initial velocity $u_2 = 2 \text{ m s}^{-1}$,

Acceleration $a_2 = 2 \text{ m s}^{-2}$, Time $(t) = 4 \text{ s}$

$$s_2 = u_2 t + \frac{1}{2} a_2 t^2 = (2 \times 4) + \frac{1}{2} (2 \times 4^2) = 8 + 16 = 24 \text{ m}$$

Total initial separation: Since they are moving towards each other and meet, the total distance is the sum of both individual distances:

$$x = s_1 + s_2 = 32 + 24 = 56 \text{ m}$$

2.

Sol. (b) Both assertion and reason are correct and reason is not the correct explanation of the assertion.

When a piece of ice floats in water, it displaces a volume of water equal to its own weight. Let M be the mass of the ice.

The volume of water displaced by the floating ice is $V_{\text{displaced}} = M/\rho_{\text{water}}$. When the ice melts completely, it converts into liquid water with the same mass M . The volume this newly melted water occupies is $V_{\text{melted}} = M/\rho_{\text{water}}$. Because $V_{\text{displaced}} = V_{\text{melted}}$, the volume previously taken up by the submerged part of the ice is exactly filled by the melted water. Thus, the water level remains unchanged. The Assertion is correct.

While Archimedes' principle explains why the ice floats and displaces its own weight, it does not explain the entire phenomenon described in the assertion. The water level remaining unchanged specifically requires the knowledge that the solid (ice) melts into a liquid of the exact same density as the surrounding fluid (water). Because the reason provided does not account for the densities or the volume of the liquid state, it is not the correct explanation for the assertion. "Both the assertion and the reason are correct, but the reason is not the correct explanation of the assertion."

3.

Sol. (a) 75 ms^{-2}

Force exerted on body B = mass of body B $\times$ acceleration produced.

$$F_B = 25 \times 15 = 375 \text{ N.}$$

By Newton's Third Law of Motion: The magnitude of the force exerted back on body A, F_A is equal to F_B .

$$\text{Therefore } F_A = F_B = 375 \text{ N.}$$

$$\text{Acceleration of body A, } a = \frac{F_A}{M_A} = \frac{375}{5} = 75 \text{ m/s}^2.$$

4.

Sol. (d) - 3.3 J

Since gravity acts downwards and the displacement is upwards, the angle between them is 180° .

$$W = FS \cos \theta \quad \text{and} \quad \cos 180^\circ = -1$$

$$W = 15 \times 0.22 \times (-1) = -3.3 \text{ J}$$

5.

Sol. (c) They have free electrons

Electricity is the flow of electric charge. Metals possess metallic bonds where valence electrons are detached from individual atoms and form a shared "sea of electrons". These free electrons can move easily through the structure when a voltage is applied.

6.

Sol. (c) Loudness of sound

The decibel (dB) is a logarithmic unit used to measure loudness of a sound wave relative to a reference level.

7.

Sol. (b) The particle covers equal distances in equal intervals of time

Speed is distance covered per unit time. Constant speed means the magnitude of speed does not change, meaning it covers equal distances in equal time intervals.

Option (c) and (d) relate to constant velocity, not speed, since direction could change (like in uniform circular motion where speed is constant but acceleration is not zero).

8.

Sol. (c) 75 min

Time for first 30 km (t_1):

$$t_1 = \frac{\text{Distance}}{\text{Speed}} = \frac{30 \text{ km}}{60 \text{ km/h}} = 0.5 \text{ hours}$$

Time for second 30 km (t_2):

$$t_2 = \frac{\text{Distance}}{\text{Speed}} = \frac{30 \text{ km}}{40 \text{ km/h}} = 0.75 \text{ hours}$$

Total Time:

$$t_{\text{total}} = 0.5 + 0.75 = 1.25 \text{ hours}$$

$$\text{In minutes the time is } = t_{\text{total}} = 1.25 \times 60 = 75 \text{ min}$$

9.

Sol. (d) Car 4

On a Distance-Time graph, the slope of the line represents the speed of the object

$$\Rightarrow \text{Slope} = \text{Distance/Time}$$

A steeper line means a higher speed. The flatter the line (lower slope), the slower the speed.

Car 4 has the lowest slope, meaning it covers the least distance in a given amount of time, making it the slowest.

10.

Sol. (d) None of these

According to Newton's Second Law of Motion, Force equals the rate of change of momentum

$$F = \frac{\Delta p}{\Delta t}$$

By pulling the hands backward, the fielder increases the time interval 't' over which the ball's high momentum is brought to zero. Since the true reason is that it increases the time taken to bring the ball to rest, reducing the rate of change of momentum

Options (a), (b), and (c) are incorrect statements.

11.

Sol. (b) Sulphur is a non-metal and lacks free electrons, so it does not conduct electricity in the solid state.

12.

Sol. (c) Evaporation is a surface phenomenon that occurs at all temperatures below the boiling point. It absorbs heat from the surroundings, causing a cooling effect. Therefore, the statement - Evaporation occurs only at the boiling point - is incorrect.

13.

Sol. (a) A-Q, B-P, C-R, D-S

Hydrogen 150000 kJ/kg

CNG 55000 kJ/kg

Wood 17000 kJ/kg

Coal 25000 kJ/kg

14

Sol. (c) 340 g

Mass of solute = 15% of 400 = 60 g

Mass of solvent = 400 - 60 = 340 g

15.

Sol. (b) Helium is less soluble in blood than nitrogen. Slow ascent prevents dangerous gas bubbles (decompression sickness).

16.

Sol. (d) Does not scatter light

True solutions do not show Tyndall effect.

17.

Sol. (c) Fractional distillation

Liquids with close boiling points are separated by fractional distillation.

18.

Sol. (d) 2,8,8 is stable noble gas configuration, so atom is not reactive.

Completely filled outer shell gives stability.

19.

Sol. (a) Fog – Aerosol

Milk → Liquid in liquid → Emulsion

Smoke → Solid in gas → Aerosol

Fog → Liquid in gas → Aerosol

Jelly → Liquid in solid → Gel

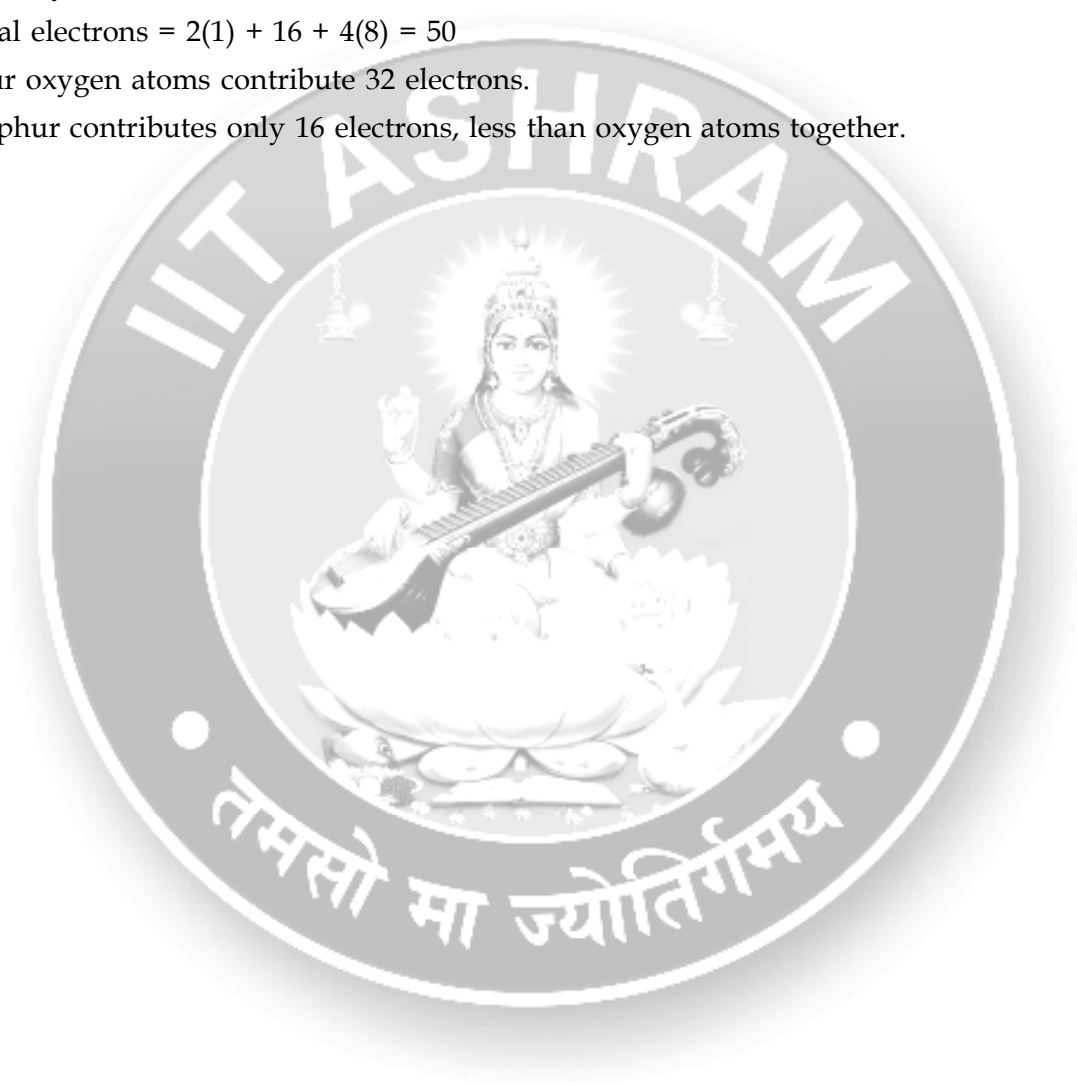
20.

Sol. (d) 1, 2 only

Total electrons = $2(1) + 16 + 4(8) = 50$

Four oxygen atoms contribute 32 electrons.

Sulphur contributes only 16 electrons, less than oxygen atoms together.



PART - IV : BIOLOGY

1.

Sol. (b) Protein packaging and secretion

The Golgi apparatus is responsible for modifying, packaging, and transporting proteins (and lipids) to their destinations inside or outside the cell. If it is non-functional, proteins synthesized by the ER cannot be properly packaged or secreted. (ATP synthesis occurs in mitochondria, DNA replication in the nucleus, and lipid synthesis mainly in the smooth ER).

2.

Sol. (b) Nucleus

Mature mammalian red blood cells (RBCs) lack a nucleus, mitochondria, and other organelles to make more space for hemoglobin. They do have a plasma membrane, cytoplasm (containing hemoglobin), and hemoglobin itself. The absence of a nucleus is a unique feature of mammalian RBCs.

3.

Sol. (c) Sclerenchyma

Sclerenchyma is a simple permanent plant tissue made of dead cells with thick, lignified walls. It provides mechanical strength to the plant. (Parenchyma and collenchyma are living tissues; chlorenchyma is a type of parenchyma that contains chloroplasts).

4.

Sol. (b) Nervous tissue

Nervous tissue (neurons) has the least capacity to regenerate. Once mature neurons are damaged, they generally cannot divide or be replaced. In contrast, epithelial tissue has a very high regenerative capacity, while connective and muscular tissues have moderate regenerative abilities.

5.

Sol. (b) Elastin fibers

Ligaments connect bone to bone and are elastic to allow joint movement. This elasticity is due to the presence of elastin fibers (along with collagen fibers which provide strength). Tendons, in contrast, have more collagen and are less elastic.

6.

Sol. (b) Gigantism

Excess secretion of growth hormone by the pituitary gland during childhood (before the growth plates fuse) results in gigantism – abnormally tall stature. (Dwarfism is caused by deficiency of growth hormone in childhood; Goiter is thyroid-related; Diabetes is pancreatic-related).

7.

Sol. (d) Both b and c

If an ovary does not release an egg (no ovulation), fertilization cannot occur because there is no egg for the sperm to fuse with. Consequently, the formation of a zygote also cannot occur. Menstruation, however, may still occur as the uterine lining sheds due to hormonal changes. So the processes that will NOT occur are both b and c.

8.

Sol. (c) Both parents contribute genes through sperm and egg

During sexual reproduction, the child receives half of their genes (23 chromosomes) from the mother via the egg cell and the other half (23 chromosomes) from the father via the sperm cell. This is why the child shows features inherited from both parents.

9.

Sol. (c) Menstruation

Menstruation is the periodic shedding of the thickened uterine lining (endometrium) along with blood and mucus, which occurs if fertilization does not take place. (Ovulation is the release of an egg; fertilization is the fusion of sperm and egg; implantation is the embedding of the embryo in the uterine wall).

10.

Sol. (a) Larynx

During adolescence in boys, the larynx (voice box) grows larger and the vocal cords become longer and thicker. This causes the voice to crack and eventually become deeper. The thyroid cartilage of the larynx also protrudes, forming the "Adam's apple."

