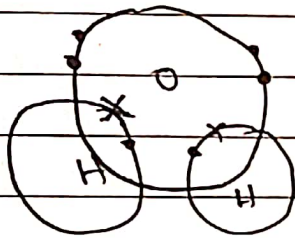


GSASection I

Q3a) Atoms form chemical bonds as a result of chemical reaction. It either share electrons between the atom known as covalent bond, or one atom ^{or more} donates its electrons to the other resulting in release of energy.



According to the diagram, the water molecule is held through covalent bond. Oxygen has shared one two electrons with two hydrogen electrons separately to complete the number of electrons required by each atom.

b) Doping is the intake of illegal substances to gain advantage in athletics. It has been banned in sports industry

- c) There are many demerits of global warming. Firstly, it is rising global temperature causing melting of glaciers. As a result, the water storage in the form of glaciers decreases and the threats of flash floods increases. Consequently, it could result in loss of infrastructure, agriculture, forests and living beings. Furthermore, it is causing sea-levels to rise with alerts of submergence of coastal cities into the sea in the future.

The merits of global warming includes melting of sea-ice more quickly in certain parts of the world in specific season and lengthened duration of melted sea-water. This would enable the country to have greater utilisation of that route for shipments. Moreover, prolonged snow seasons result in disruption of life and threat to life and infrastructure especially in areas with muddy houses. Global warming would, hence, shorten or decrease the duration of snow making it convenient for people to survive the weather.

- d) Polio is a virus that results in permanent paralysis of certain body parts making a person disabled. Although the world has curbed the virus, it still exists in parts of Pakistan and Afghanistan. A lot of efforts are made to curb the virus, people are

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not in favour of its vaccines. They claim that vaccine constitutes of properties that makes a person infertile. In various parts of Pakistan, polio workers have been assaulted and killed. Hence, govt acts to provide security protection and bring awareness among people. Unfortunately, people still perceive polio vaccines as threats. Moreover, it involves the cost of storing in cold compartments to ensure its effectiveness.

Q4

a) Bile is made and released from the ~~gallbladder~~ liver and stored in the gall bladder. It is released into the stomach to emulsify fat, and thus, aiding in absorption. Moreover, it aids in excretion and is alkaline like which neutralises the acid in the stomach. It also contains the waste from liver such as dead cells that give it greenish-yellow colour.

b) Kidney plays a role to filter blood from excess fluid and waste products. It do so through the process of osmosis in which water and excess wastes move from higher concentration to lower concentration. The excess is transferred from kidney to urinary bladder which is excreted in the form of urine. Hence, it ensures optimal blood concentration and optimal blood pressure.

c) Solid Waste management is essential especially in metropolitan cities with high population. First measure of such management is dumping. Solid wastes are taken and dumped in large landfills away from the city. Second measure is installing separate bins for recyclable products such as plastics and biodegradable products. This would help in recycling of the products and production of energy from biodegradable products. The third measure is bringing awareness and educating general public on waste management. The fourth measure could be minimising the use of plastic by banning plastic bags. This would reduce plastic dumps and clogging of sewers, especially in countries like Pakistan. Lastly, it could be burnt in a well established setup to produce energy.

d)

i) Anemia

Anemia is the condition of less ^{Red} blood cells in the body.

ii) Appendicitis

Appendicitis is the inflammation of appendix which later bursts releasing poisonous substances in the body. It is removed through operations.

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iii) Spleen

It is located in upper portion above stomach that filters blood to help destroy microorganisms and get rid of dead red blood cells.

iv) Myopia

It constitutes to short-sightedness of vision in which things look blurry at longer distances.

v) Estones

Estones are a form of chemicals

Section II

Q6

a) Let the number of 'C' block be x

$$\therefore C = x \quad \rightarrow \quad x = \frac{3}{15} \times \text{total}$$

$$A = x + 50$$

$$\boxed{\text{Total} = 5x} - (1)$$

blocks

$$\rightarrow x + 50 = \frac{4}{15} \times \text{total}$$

block

$$15x + 750 = 4 \times \text{total}$$

$$\text{Total blocks} = \frac{15x + 750}{4}$$

$$\therefore 5x = \frac{15x + 750}{4}$$

$$x = 750$$

$$20x - 15x = 750$$

$$x = 750$$

$$\begin{array}{r} 15 \\ 5 \\ \hline 75 \end{array}$$

$$\begin{array}{r} 15 \\ 5 \sqrt{750} \\ \underline{500} \\ 250 \\ \underline{250} \\ 0 \end{array}$$

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$$\text{Total blocks} = 5 \times 150 = 750$$

$$B = \frac{7}{14} \times 150$$

$$B = 350$$

The total stocks of B letter is 350 Ans

b) Original cost = \$80
Discounted price = $80 \times (100 - 15)\%$
 $= 80 \times \frac{85}{100}$
 $= 68 \$$

* Assume Sales tax is applied on discounted price

$$\text{Final price} \Rightarrow 68 \times (100 + 10)\%$$
$$= \frac{68 \times 110}{100}$$
$$= 74.8 \$ \text{ Ans}$$

c) $\text{Speed} = \frac{\text{Distance}}{\text{time}}$

$$36 = \frac{42}{x}$$

$$x = \frac{42}{36} = 1.1 \text{ hour}$$

$$1.1 \times 60 = 66 \text{ minutes}$$

If train departs at 4 p.m, it will approximately arrived at 5:06 p.m Ans

units
per
hr

key
is
not
needed

17
15
85
17
58

68
11
68
68 x
748

11
36
6
10
6
40

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d)

i) Uninterpreted

ii) White

Q8.

a)

Height of right angle
Applying Pythagoras Theorem

$$H^2 = B^2 + H^2$$

$$5^2 = 4^2 + H^2$$
$$25 = 16 + H^2$$

$$9 = H^2 \quad H = 3 \text{ km}$$

$$\text{Total distance travelled} = 5 + 4 + 3 + 6 + 8$$
$$= \underline{26 \text{ km}} \text{ Ans}$$

$$H^2 = \text{Base}^2 + \text{Height}^2$$
$$= 6^2 + 8^2$$
$$= 36 + 64$$
$$= 100$$

$$H = 10 \text{ km}$$

The person is 10 km ^{away} from his starting point Ans

b)

Akbar is assumed as x

$$\text{Akbar} = x$$

$$\text{Ali} = 5x$$

$$\text{Shahbaz} = 5x$$

$$\text{Nasir} = 5x$$

$$\text{Hasan} = \frac{5x}{3}$$

$$x + 5x + 5x + 5x + \frac{5x}{3} = 8000$$

$$48x + 5x = 24000$$

$$53x = 24000$$

$$x = 452.8$$

16

3

48

952.8

24000

212

280

25

150

166

440

424

160

$$Ali = 452.8 \text{ Rs.} \times 5 = 2264 \text{ Rs.}$$

$$\begin{array}{r} 214 \\ 452.8 \\ \hline 8 \\ \hline \end{array}$$

$$Shahbaz = 2264 \text{ Rs.}$$

$$2264.0$$

$$Nasir = 2264 \text{ Rs.}$$

$$754.6$$

$$Akbar = 226452.8 \text{ Rs.}$$

$$\begin{array}{r} 3 \overline{) 2264} \\ 211 \\ \hline 15 \\ \hline 11 \\ \hline 14 \\ \hline 12 \\ \hline \end{array}$$

$$Hasan = 754.6 \text{ Rs.}$$

$$170$$

c) Volume and Surface Area

$$\text{Volume} = \pi r^3$$

$$= \frac{22}{7} \times 7 \times 7 \times 7 \times 4$$

$$= 1437.3 \text{ cm}^3$$

$$\begin{array}{r} 170 \\ 360 \\ \hline 1720 \\ 22 \\ \hline 49 \\ \hline 198 \\ 88 \times \\ \hline 1078 \end{array}$$

$$S.A = 4\pi r^2$$

$$= 4 \times 22 \times 7 \times 7$$

$$= 616 \text{ m}$$

$$\begin{array}{r} 88 \\ 7 \\ \hline 616 \end{array}$$

d) Zain : Aslam : Ashraf

$$2 : 3 : 7$$

$$Zain = 2 \times 4320$$

$$\frac{126}{631}$$

$$= 720 \text{ Rs.} \text{ Ans}$$

$$Aslam = 3 \times 4320 = 1080 \text{ Rs.} \text{ Ans}$$

$$Ashraf = 7 \times 4320 = 2520 \text{ Rs.} \text{ Ans}$$

$$\begin{array}{r} 88 \\ 149 \\ \hline 1792 \\ 382 \\ \hline 31312 \\ 31 \\ \hline 13 \\ \hline 12 \\ \hline 11 \\ 9 \\ \hline 22 \\ 21 \\ \hline 10 \\ \hline 4 \\ 360 \\ 7 \\ \hline 2520 \end{array}$$