

Section-I

Q3

a **Chemical bonds:**

Chemical bonds are the bonds formed between two atoms to gain stability.

Some atoms are short of electrons in their valence shell and therefore, they are in unstable state. Such atoms form bonds with other atoms by transferring or sharing of electrons to become stable.

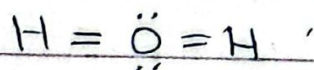
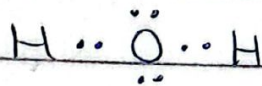
Covalent bonds:

Covalent bonds are formed when two unstable or more unstable atoms share their valence shell electrons to get a stable state.

Covalent bond in water:

Water molecule consists of two hydrogen atoms and one oxygen (H_2O). Hydrogen atoms only have one electron in their valence shell. To become stable

they need to have two electrons in the valence shell. On the other hand, oxygen atom needs two electrons to complete octet to get stable. Hence, they share electrons to get stable.



C Global warming:

Global warming is a natural process. It is a slow rise in the temperature of the Earth.

This process is essential for making life on Earth possible but due to human activities and interference in the natural setting of the environment, the process of global warming has accelerated and now it is posing a threat to existence of life.

Merits of Global Warming?

- 1 Keeping the temperature suitable for agricultural production
- 2 Preventing extreme temperature drops in winters
- 3 Keeping Earth's temperature suitable for all forms of life i.e for plants, animals, aquatic life, microorganisms, and human beings.

Demerits of global warming

- 1 Melting of glaciers resulting in loss of habitate in polar regions and rise in sea levels.
- 2 Rising sea levels pose a threat of flood in coastal areas leading to loss of life and property.
- 3 Extreme high temperature in summer is disturbing agriculture and causing health problems in humans and animals.
- 4 Forest fires are caused due to global warming causing loss of habitate, loss of biodiversity and pollution.

- 5 With melting glaciers, fresh water of Earth is being wasted
- 6 Viruses buried under the glaciers are becoming a threat for humanity as the glaciers are melting exposing these viruses to the world.
- 7 Climate of Earth is changing drastically because of global warming and frequent extreme climate events like floods and forest fires have become a global challenge.

d Polio :

Polio is a disease which affects the nervous system causing paralysis particularly in the legs.

Cause : Polio is caused by polio virus

Symptoms: high fever, fatigue, nausea, vomiting, headache

Spreads through: It spreads through direct contact with faeces of an infected person.

treatment: It can not be treated. It can only be prevented by vaccine.

Polio in Pakistan:

After successfully eradicating polio a few years ago, this disease has surged again in the country.

Pakistan is facing a number of challenges in eradicating this disease such as:

1. Illegal border crossing from Afghanistan which is the only country, after Pakistan, where polio still exists.
2. Conservative mindset of people is a great challenge in eradicating polio. Because of their conservative mindset, people refuse giving polio vaccine to children and even attack the polio workers.

~~During the process of digestion ...~~

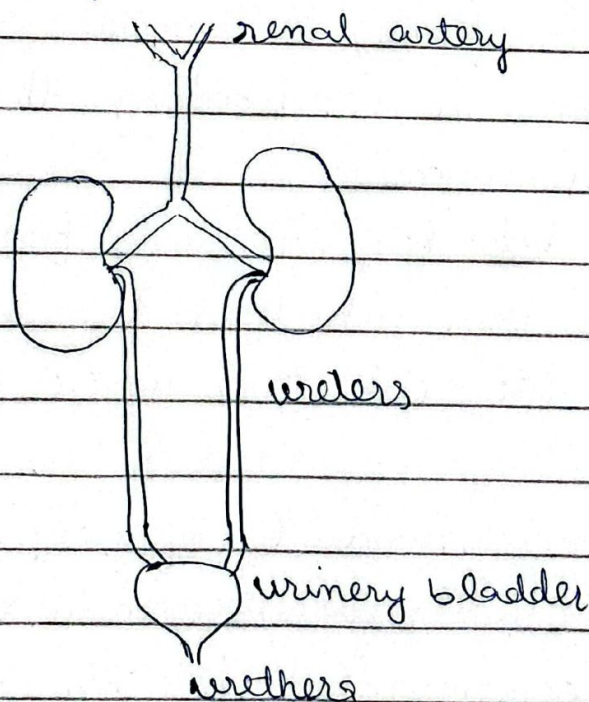
This is particularly a prominent issue in rural and tribal areas.

Q4

6 Role of kidney in excretion:

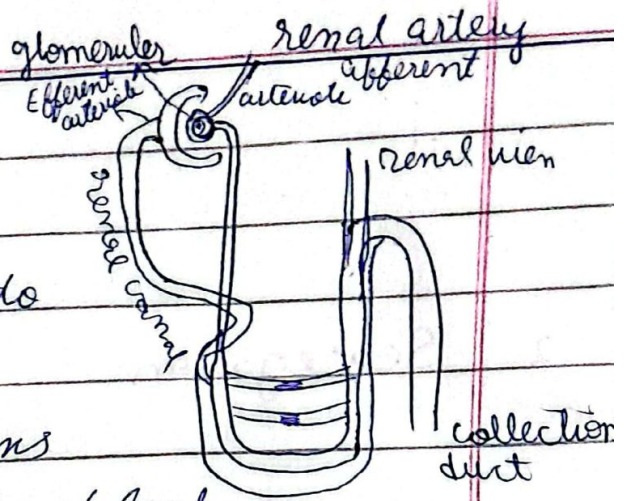
Excretion means cleaning of blood and removal of the waste material from the body.

Kidney is a bean-shaped organ and it is the center of the excretory system.



The blood enters kidneys for cleaning through renal artery. Inside each kidney, there are millions

of nephrons. Blood enters nephron through arteriole into glomerulus. Then, glomerulus performs the cleaning of the blood.



The clean blood goes back to the heart through renal vein. The filtrate called glomerular passes through the renal canal into the collection duct from where it is removed from the kidney through ureters. Ureters take this waste to the bladder which stores it temporarily, then it is excreted through a small opening called urethra.

: Solid waste management

Solid waste management is a supervised handling of waste.

In this process, there are three stages:

1. Collection:

Waste is collected from different

places of generation. It includes industrial waste, e-waste, municipal waste, agriculture waste etc.

2 Segregation

Collected waste is taken to transition station where it is segregated into recyclable and non-recyclable waste. Recyclable waste is sold and ^{non-}recyclable waste is sent for disposing.

3 Disposing of waste:

There are a number of methods of disposing the solid waste:-

3.1- Open dumping

This means openly dumping the waste in the outskirts of the city.

3.2- Controlled biodegradation

All the organic waste is placed in a chamber and is biodegraded by microorganisms in a controlled environment.

3.3- Incineration:

The waste is burned at a high temperature inside an

incinerator

3.4- Landfills

A large pit is dug and the waste is buried in it.

d) i) Anemia

Anemia is a disease in which blood inside a human body is less than normal.

ii) Appendicitis

Blocking and swelling of the appendix is called appendicitis.

iv) Spoken Myopia

Myopia is also known as short-sightedness or near-sightedness. It is a condition in which a person can not see objects which are far away.

a) Bile

Bile is a juice secreted from the liver. This juice is secreted during the process of digestion when

chyme from the stomach enters the first part of the small intestine.

Bile consists of enzymes which help in further digestion of complex carbohydrates.

Section-II

Q6 Number of B blocks = ?

(a) $A : B : C : D = 4 : 7 : 3 : 1$

$$\begin{aligned} \text{total ratio} &= 4 + 7 + 3 + 1 \\ &= 15 \end{aligned}$$

let, total toys = x

$$\text{Number of A blocks} = \frac{4}{15} x$$

$$\text{Number of C blocks} = \frac{3}{15} x = \frac{1}{5} x$$

According to the given condition:-

$$\frac{4}{15} x = \frac{1}{5} x + 50$$

$$\frac{4}{15} x - \frac{1}{5} x = 50$$

$$\frac{4}{15} x - \frac{3}{15} x = 50$$

$$x = 50 \times 15$$

$$x = 750$$

$$\begin{aligned} \text{Number of B blocks} &= 7 \times \frac{750}{15} \\ &= 7 \times 50 \end{aligned}$$

$$= 350$$

Given:

original price of shoes = 80 \$

discount = 15%

sales tax = 10%

Find:

final price = ?

Solution:

$$\text{Discount} = 15\% \text{ of } 80$$

$$= \frac{15}{100} \times 80$$

$$= 3 \times 4$$

$$= 12 \$$$

$$\text{Price after discount} = 80 - 12$$

$$= 68 \$$$

$$\text{sales tax} = 10\% \text{ of } 68 \$$$

$$= \frac{10}{100} \times 68$$

$$= 6.8 \$$$

$$\text{Price with sales tax} = 68 + 6.8$$

$$= 74.8 \$$$

c Given:

Distance travelled = 42 km

Speed per hour = 36 km

Departing time = 4:00 pm

Find:

Time of arrival = ?

Solution:

train covered 36 km in 1 hour

train covered 1 km in $\frac{1}{36}$ hour

train covered 42 km in = $\frac{1}{36} \times 42$

$\frac{1}{36} \times 42$

= $\frac{7}{6}$

$\frac{7}{6}$

= 1.2 hour

1.2 hour = 1 hour 12 minutes

Time of arrival = 4 + 1 h 12 min

= 5 h 12 min

= 5:12 PM

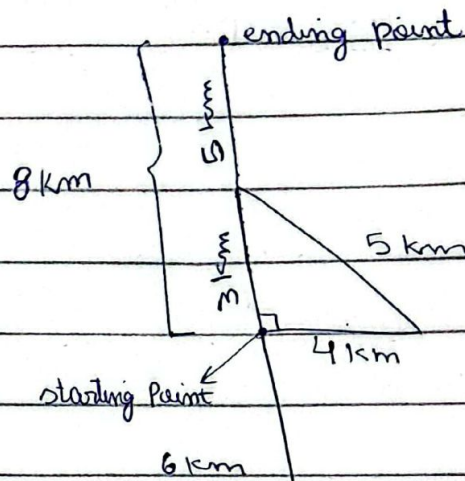
d Jumbled words

i teninsuperzed

ii hweti

Q8

a



First, find perpendicular:-

$$h^2 = b^2 + p^2$$

$$(5)^2 = (4)^2 + p^2$$

$$25 = 16 + p^2$$

$$25 - 16 = p^2$$

$$9 = p^2$$

$$\sqrt{9} = \sqrt{p^2}$$

$$3 = p$$

Total distance travelled = $4 + 5 + 3$

$+ 6 \text{ km} + 16 + 5$

$6(3+5)$

$$= 32 \text{ km}$$

The man is 8 km North from his starting point.

b Let, pocket money of:

$$\text{Hassan} = h \quad , \quad \text{Nasir} = n$$

$$\text{Ali} = l$$

$$\text{Akbar} = k$$

$$\text{Shehbaz} = s$$

According to given condition:

$$h = \frac{l}{3} \quad , \quad s = n + l$$

$$l = 5k \quad \rightarrow G$$

$$k = 3n \quad \rightarrow G$$

$$s = n + l$$

$$s = l$$

$$s = l$$

$$\text{Total amount} = 8000$$

$$h + l + k + n + s = 8000$$

$$\frac{l}{3} + l + 3n + n + l = 8000$$

$$\frac{l + 3l + 3l + 3n + n + l}{3} = 8000$$

$$1s + 3n + 9n + 3n + 3s = 8000 \times 3$$

$$19n = 24000$$

$$n = \frac{24000}{19}$$

$$19$$

$$= 1263.6$$

So,

$$s = n = l = 126.36$$

then,

$$h = \frac{1}{3} (126.36)$$

$$= 42.12$$

$$k = 3(126.36)$$

$$= 379.08$$

According to condition:

$$h + l + k + s + n = 8000$$

$$\frac{1}{3} l + l + 3n + (n+l) + n = 8000$$

$$\frac{1l + 3l + 3l + 3n + 2n}{3} = 8000$$

$$\frac{7l + 5n}{3} = 8000 \rightarrow \textcircled{A}$$

From eq (1) and (2):-

$$l = 5k = k = \frac{l}{5}$$

$$k = 3n$$

$$n = \frac{k}{3} = \frac{l}{5 \div 3}$$

$$n = \frac{l}{5 \times 3} = \frac{l}{15}$$

Put this value in (A).

$$\frac{7}{3}l + \frac{5}{18}l = 8000$$

$$\frac{7}{3}l + \frac{l}{3} = 8000$$

$$8l = 8000 \times 3$$

$$l = \frac{24000}{8}$$

$$\Rightarrow \boxed{l = 3000}$$

Now:

$$\Rightarrow h = \frac{1}{3}(3000) = \boxed{1000}$$

$$\Rightarrow l = 5k$$

$$k = \frac{l}{5} = \frac{3000}{5} = \boxed{600}$$

$$\Rightarrow k = 3n$$

$$n = \frac{k}{3} = \frac{600}{3} = \boxed{200}$$

$$\begin{aligned} \Rightarrow s &= n + l \\ &= 200 + 3000 \\ &= \boxed{3200} \end{aligned}$$

2 Let,

$$\text{Zain} = x$$

$$\text{Aslam} = y$$

$$\text{Ashraf} = z$$

According to condition:

Zain: Aslam: Ashraf

2 : 3 : 7

$$\text{total ratio} = 7 + 3 + 2$$

$$= 12$$

total amount = 4320 Rs

$$\text{Zain's share} = \frac{2}{12} \times 4320$$

$$\frac{1}{6}$$

$$= 1 \times 4320$$

$$6$$

$$= 720$$

$$\text{Aslam's share} = \frac{3}{12} \times 4320$$

$$12$$

$$= 1 \times 4320$$

$$4$$

$$= 1080$$

$$\text{Ashraf's share} = \frac{7}{12} \times 4320$$

$$12$$

$$= 7 \times 4320$$

$$= 2870 \quad 2520$$