

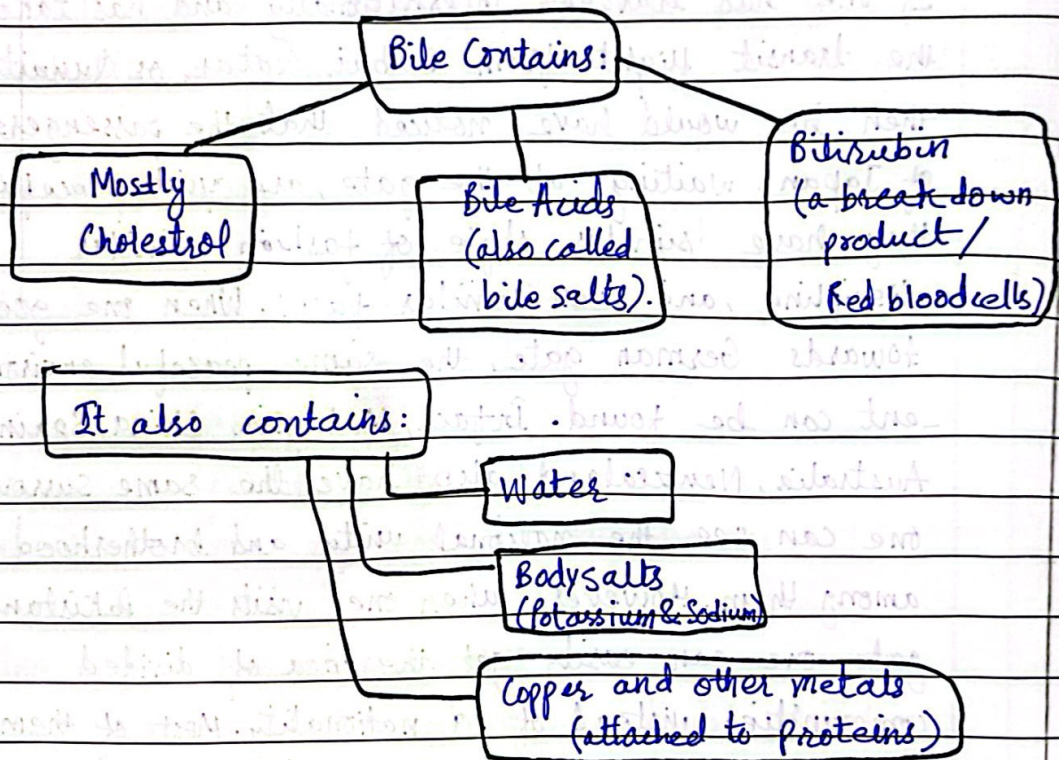
## Section - I

Qno: 4

Ans

(a) Note on Liver juice 'Bile'.

Bile is a fluid that is made and released by the liver and stored in the gallbladder. It helps with digestion and breaks down fats into fatty acids, which can be taken into the body by the digestive tract.



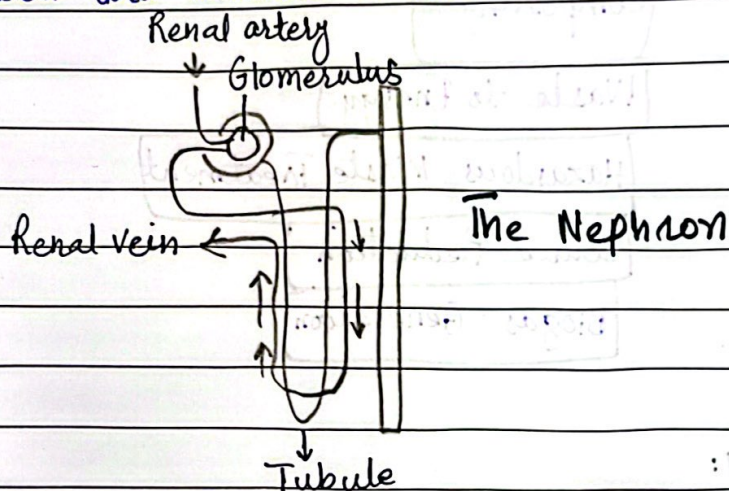
(b) Role of Kidney in Excretion

Kidneys remove wastes and extra fluids from the body and also remove acid that is produced by the cells of your body and maintain a healthy balance of water, salts, and minerals such as, sodium, calcium, phosphorus, and potassium, in your blood.



## • The Nephron

Each of the kidney is made up of about a million filtering units called nephrons. Each nephron includes a filter, called the glomerulus, and a tubule. They work through a two-step process: the glomerulus filters your blood, and the tubule returns needed substances to your blood and remove wastes.



Working of Nephron includes:

Filtration

Reabsorption

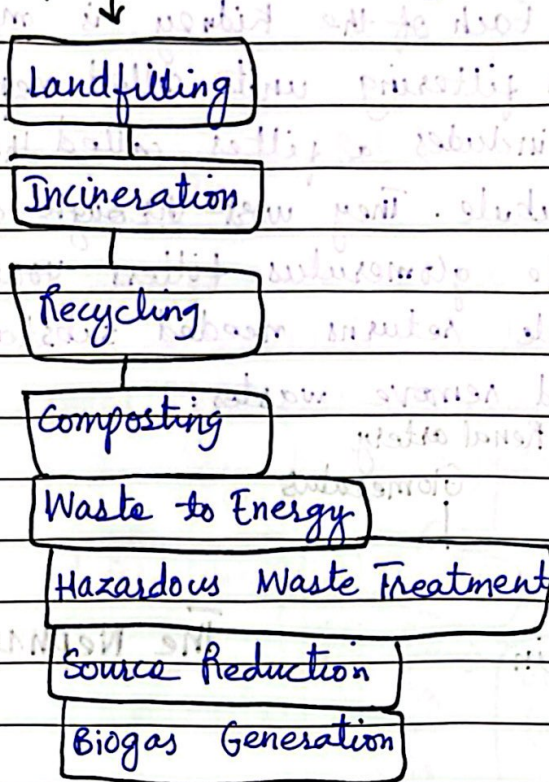
Secretion

## (c) Different Methods of Solid Waste Management

Solid Waste disposal and management involve a variety of methods to handle and dispose of waste materials generated by human activities. These methods aim to minimize the environmental impact of solid waste and promote sustainable waste management practices. Following are some common methods of solid waste management:



## Methods of Solid Waste Management:



### • Landfilling:

These are engineered sites where solid waste is deposited and compacted. The waste is then covered with soil to reduce odours, prevent the spread of disease, and minimize environmental contamination.

### • Incineration:

Incineration or combustion, involves the controlled burning of solid waste at high temperatures. This method reduces the volume of waste and generates energy through combustion. Proper air pollution control systems are crucial to minimizing harmful emissions into the atmosphere.

• Recycling: It involves separating, processing, and reusing materials from solid waste. Paper, plastics, glass, metals, and some types of organic waste are



typical recyclable materials. It lessens the need for raw materials, mitigates energy usage, and lessens greenhouse gas emissions.

### Composting

This method connotes the biological decomposition of organic waste. It is environmentally friendly and results in a valuable soil amendment that can be used in agriculture and landscaping.

### (d) Definitions

1. **Anaemia**: It is a condition that develops when your blood produces a lower-than-normal amount of healthy red blood cells.

2. **Appendicitis**: This occurs when the appendix becomes inflamed and filled with pus. It is an inflammation of the appendix. The appendix is a finger-shaped pouch that sticks out from the colon on the lower right side of the belly. It causes pain in the lower right abdomen.

3. **Spleen**: An organ that is part of the lymphatic and blood systems. It filters the blood to help destroy microorganisms and get rid of old or damaged red blood cells. It also makes lymphocytes (white blood cells) and stores blood cells.

4. **Myopia**: It is a medical name for nearsightedness, which means that you can see objects that are near clearly but have difficulty seeing objects



that are farther away.

5. **Isotone:** Any two or more species of atoms that have the same number of neutrons. Thus, Chlorine-37 and potassium-39 are isotones, because the nucleus of this species of chlorine consists of 17 protons and 20 neutrons, whereas the nucleus of this species of potassium contains 19 protons and 20 neutrons.

Q no: 5

(a) According to the study of Institute of Strategic Studies Islamabad (ISSI), in developing countries like Pakistan, a high population growth rate has negative consequences for economic development.

In Pakistan, a high rate of population means poverty, illiteracy, a low standard of living, a lack of prosperity, and a vicious cycle of poverty.

### Primary Causes of Population Explosion:

- Falling Mortality Rate
- Underutilized Contraception
- Female Education Deficit
- Degradation of the environment
- An increase in the number of conflicts
- Disasters and pandemics are more likely.

### Controlling Measures:

- Spread of Education (Family Planning)
- Raising the status of women
- Adoption
- More employment opportunities for women
- Minimum Age of Marriage



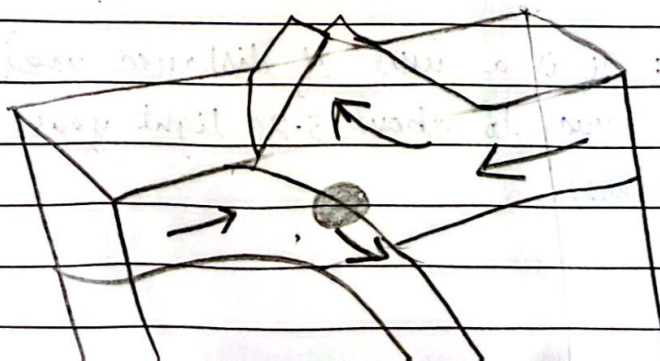
Cyclone	Tornado
<ul style="list-style-type: none"> <li>• A cyclone is a huge and powerful storm.</li> </ul>	<ul style="list-style-type: none"> <li>• A tornado is violent, twisted funnel of high speed wind.</li> </ul>
<ul style="list-style-type: none"> <li>• It consists of a low pressure area with high pressure all around.</li> </ul>	<ul style="list-style-type: none"> <li>• It is formed when a funnel like column of cold air sinks down from a stormy cloud.</li> </ul>
<ul style="list-style-type: none"> <li>• High speed winds go around the centre violently and are accompanied by heavy rains. They have large diameters.</li> </ul>	<ul style="list-style-type: none"> <li>• Warm air rises up causing high speed circulating winds. They have relatively smaller diameter.</li> </ul>

### Tropical Cyclone Remal - May 2024

Tropical Cyclone REMAL struck northeastern India and Bangladesh from May 26-28, causing severe flooding and landslides.

### (c) How earthquake occurs

An earthquake is caused by a sudden slip on a fault. The tectonic plates are always slowly moving, but they get stuck at their edges due to friction. When the stress on the edge overcomes the friction, there is an earthquake that releases energy in waves that travel through the earth's crust and cause the shaking that we feel.





## • Turkey Earthquake (2023)

On February 6, 2023, a series of earthquakes killed over 55,000 people in Turkey and Syria, in the worst earthquakes the region has seen in 20 years. The intensity of earthquake which jolted Turkey was measured with a magnitude of 7.8 on Richter Scale.

### (d) Definitions

1. Hypocenter: It is the point within the earth where an earthquake rupture starts. It is also known as 'Focus'.

2. Epicenter: The point at the surface of the earth above the focus is called epicenter.

3. Eye wall of hurricane: It is the location within a hurricane where the most damaging winds and intense rainfall is found.

4. Shallow Focus: Shallow focus earthquakes are commonly occurring 'crustal' earthquakes, caused by faults and movements of the continental plates. They cause greater damage at the surface of earth as their focus is nearer to earth's surface.

5. Parsec: It is a unit of distance used in astronomy, equal to about 3.26 light years ( $3.086 \times 10^{13}$  Kilometers).



## Section - II

Qno: 7

(a) Volume of a cylinder:

Data:

Volume of a cylinder = ?

Radius = 30 cm

Height = 1 m = 100 cm

Solution:

$$V = \pi r^2 h$$

$$V = 3.14 \times (30)^2 \times (100)$$

$$V = 3.14 \times 900 \times 100$$

$$V = 3.14 \times 90000$$

$$V = 282600$$

Volume of a cylinder is 282600.

(b)

Data:

Average age of 3 boys = 15 years

Ratio of the ages = 3:5:7

Solution:Let the ages of 3 boys be  $3x$ ,  $5x$ ,  $7x$ , respectively

$$\text{Total age} = 3x + 5x + 7x = 15x \quad (1)$$

It is given that the average of the ages of 3 boys = 15 years

$$\text{Therefore, total age} = 15 \times 3 = 45 \text{ years} \quad (2)$$

Using (1) and (2) we get

$$15x = 45$$

$$x = \frac{45}{15}$$

$$x = 3$$

Therefore, the age of youngest boy =  $3 \times 3 = 9$  years.



(c) Identify the series

11, 33, 99, 297

(i) 8, 19, 52, 151, 447, \_\_\_\_\_ (What is wrong number in this series?)

447 is the wrong number in this series. 19

(ii) 11, 13, 17, 19, 23, 25

2 4 2 4 2

(d)

Data:

Triangle has sides of 5cm, 4cm, and 6cm.

What will be each angle?

Solution:

$$\begin{array}{r} -8 \\ 11 \\ \hline 452 \\ -19 \\ \hline 33 \\ 4 \\ \hline 1811 \\ -52 \\ \hline 99 \end{array}$$

$$\begin{array}{r} 3447 \\ -151 \\ \hline 29.6 \end{array}$$