

General Science and ability

Q No. 4

Write a note on liver juice "Bile".

i- Definition:-

Bile is a digestive fluid produced by the liver and stored in gallbladder.

ii- Important role:-

It plays a crucial role in the digestion and absorption of fats and fat-soluble vitamins in the small intestine.

Bile contains:-

bile acids, bile salts, cholesterol, bilirubin, electrolytes, and water. It emulsifies

its emulsification:-

It emulsifies fats, breaking them down into smaller droplets, which makes them more accessible to digestive enzyme like lipase. Additionally, bile

aids in the excretion of waste products of red-blood cells breakdown.

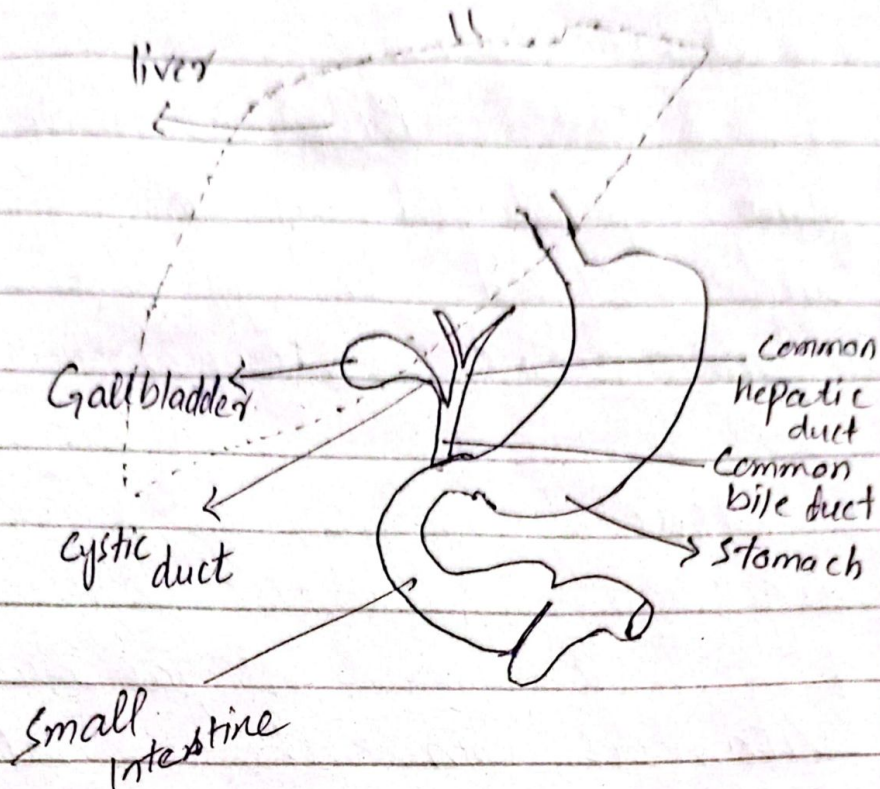


Diagram: Gallbladder

(b) Describe the role of the kidney in excretion.

Answer:-

i- Organ

The kidneys are vital organs in the excretory system responsible for filtering blood to remove waste products, excess substances,

and toxins, which are excreted as urine. They regulate the body's fluid balance, electrolytes, and acid-base balance.

Maintenance. The kidneys also maintain blood-pressure through the renin-angiotensin-aldosterone system, produce erythropoietin to stimulate red-blood cell-production, and activate vitamin D for calcium absorption.

(C) Different methods of solid waste management

1. **Landfills:** waste is buried in the ground. Modern landfills are engineered to reduce environmental impact.

2. **Recycling:** Processing materials to make new products, reducing the need for raw-materials.

3. **Composting:** organic waste is decomposed naturally, producing

compost for agriculture.

4. Incineration: Waste is burned at high temperature, reducing its volume and sometimes generating energy.

5. Waste to energy:

converting waste material processes like anaerobic digestion or thermal treatment.

6. Source reduction: Minimizing waste generation through efficient manufacturing and consumption practices.

(D) Define terms

i. Anaemia:

ii. Appendicitis:

iii. Spleen

iv. Isotones

1) Anaemia

A condition characterized by a deficiency of red blood cells or haemoglobin leading to reduced oxygen

transport in abdominal pain, or body, causing fatigue, weakness, and shortness of breath.

Appendicitis: Inflammation of the appendix, often resulting in abdominal pain, nausea, and requiring surgical removal.

Spleen: An organ involved in filtering blood, recycling old red blood cells, storing white blood cells and platelets, and playing a role in the immune system.

iv- Myopia: Also known as nearsightedness, it is a common vision condition where distant objects appear blurry while close objects are seen clearly.

v. Isotones: Atoms of different elements that have the same number of neutrons but different no. of protons.

Q NO. 5:- Answer

(a) The population explosion in Pakistan is due to several factors:

i- **High Birth Rate:** Cultural and social norms favor large families.

ii- **Early Marriage:-** Marrying at a young age increases the reproductive span.

iii- **Lack of education:** Limited access to education, especially for women, result in a lack of awareness about family planning.

iv- **Poor access to contraception**
Inadequate availability and awareness of contraceptive methods.

iv- **Poverty:** Economic constraints often lead to larger families as children are seen as assets.

Control measures include:

i- **Education:** Promoting literacy

and educational programs, particularly for women.

Family planning: providing accessible and affordable contraceptives services.

Economic development: Improving economic conditions to reduce reliance on large families for labor.

Health care services: Running / Enhancing maternal and child health services.

Awareness Campaign: Running campaigns to change cultural attitudes towards family size.

(b) **Cyclones vs. Tornadoes and Cyclone Observed in 2024.**

Difference:

1. **Scale:** Cyclones are large, low-pressure systems spanning hundreds of kilometers, while tornadoes are smaller and more localized.

Duration: Cyclones can last

Several days to weeks, whereas tornadoes usually last a few minutes to an hour.

Formation: Cyclones form over warm ocean waters, while tornadoes are typically spawned from severe thunderstorms on land.

Wind Speed: Cyclones have lower wind speeds compared to tornadoes, which can have exceeding 300mph.

Cyclone in 2024: Cyclones have lower wind speeds compared impacted regions including India and Pakistan.

(C) **Earthquake Occurance** Turkey's Earthquake in 2023.

Earthquake Occurances:

Earthquakes occur due to the sudden release of energy in the Earth crust, creating seismic waves. This release is often caused by the

movement of tectonic plates
at faults
Tussey's Earthquake in 2023
Casualties: over 50,000
people died.
Intensity: The earthquake had
a magnitude of 7.8 on the
Richter scale.

d. Definitions

i- Hypocenter:

The hypocenter is the point
within the Earth quake where
an Earth quake rupture starts
it is located beneath the
Earth's surface.

ii- Epicenter:

The Epicenter is the point
on the Earth's surface
directly above the hypocenter.
It is often where the strongest
effects of earth quake
are felt.

iii- Eye wall of a Hurricane

The eye wall is a ring
of towering clouds that

that surrounded the eye of the hurricane. It contains the most severe weather, including the highest winds and heaviest rains.

(iv) Shallow Focus:

A shallow focus earthquake has a hypocenter located at a depth of less than 70 kilometers below the Earth's surface. These earthquakes typically cause more damage compared to deeper ones.

(v) Parsec:

A parsec is a unit of distance used astronomy equivalent to about 3.26 light-years, or approximately 39 trillion kilometers. It is used to measure large distances to astronomical objects outside the solar systems.