Q.no-4

(a)

What is Role of Carbohydrates vitamins in body.

Role of Carbohydrates in body:

Carbohydrates:-

They are polyhydroxy aldehydes or ketones which on hydrolysis yield polyhydroxy aldehydes or ketone subunits.

Example: Glucose, Fructose

Role of Carbohydrates in body:

a) **Energy Source:** Carbohydrates act as fuel for body. They provide energy to body. **Brain** uses carbohydrates as energy sources. Glucose units break down and give energy in form of **ATP**.

b) **Prevent against diseases:**

Whole grains help lower risk of heart disease and stroke. Fiber may also help protect against obesity, colon and rectal cancer.

c) Ample fuel for heart, Kidneys.

Glucose as instant source of energy work as better fuel for heart, kidneys and brain than proteins and lips.

d) Glycoprotein - cell recognition:

With proteins, carbohydrates foom glycoprotein which help in recognition of other cell as familiar cell or foreign. This is called cell to cell recognition.

e) Blood sugar:

In blood, carbohydrates act as blood sugar which insulin provides to cell for energy.

Role of vitamins in body:

Vitamins:

They are organic molecules that are essential to an organism in small quantities for proper metabolic functions.

Examples:

Vitamin A, Vitamin B

Role:

i- Role of fat soluble Vitamins:

1- Role of Vitamin A:

It improves eyesight, skin, muscles and mucous membrane in body.

2- Role of vitamin D:

It helps in growth of bone tissues. It assist in calcium and phosphate metabolism.

3- Role of vitamin E:

Mostly it act as anti oxidant in body and also provide defense to diseases.

4- Role of vitamin K:

It has key role in Blood clotting and assist in synthesis of protein important in bone mineralization.

Role of water Soluble vitamins:

1- Role of Vitamin B:

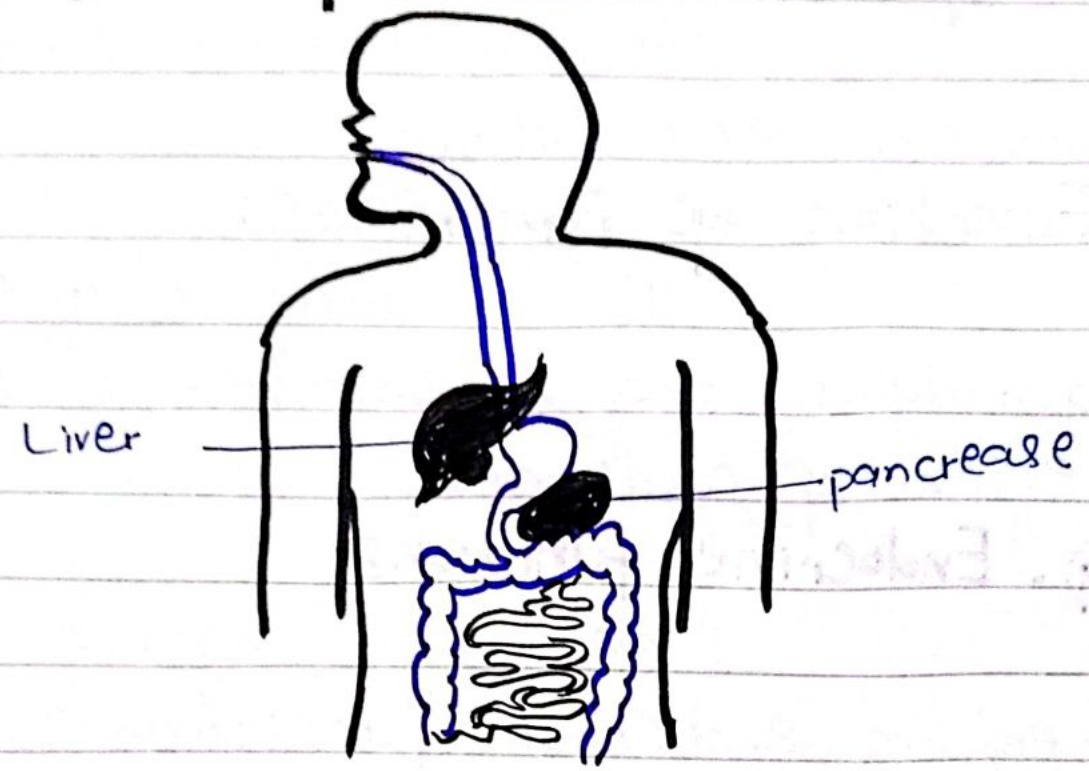
They help in formation of red blood cells and their functioning.

2- Role of Vitamin C:

It is needed for biosynthesis of collagen and growth tissues in body.

Discuss functioning of liver and Pancrease

(a) Function of Liver:



Laver is largest organ in body. It performs following functions:

i. Detoxification:

It does detoxification of many chemicals like Ammonia.

ii. Storage:

It store glucose in glycogen form.

iii. Bile production:

It produces bile which is fat digesting enzyme.

iv. Metabolism:

It does metabolism of

protein, lipids and carbohydrates by conversion of lactic acid to glycog

v. **Synthesis:**

It does synthesis of nitrogenous wastes and cholesterol etc.

(b) **Function of Pancrease:**

It is leaf shaped glandular organ located in epigastric region of abdomen.

a). **Endocrine functions:**

Islets of langerhans perform endocrine functions. They contain hormone producing cells.

i. **Alpha Cells:**

They are associated with insulin production, thus maintain blood sugar level by suppressing glucose level.

ii. **Beta cells**

They produce glucagon which increase blood sugar level.

b) **Exocrine functions:**

Externally, major role of pancrease is in digestive system.

1. Lipids in food

i- Digestive Enzymes:

It produces digestive enzyme For example;

(a) Amylase: catalyze digestion of carbohydrates

(b) Lipase: It assist in digestion of fats.

(c) Proteases: Proteases like toypsin and chemotoypsin are for digestion of pooteins.

ii- Bicarbonates:

It secret bicarbonates in small intestine to neutralize acidic chyme

(c)

What are standards of doinking water? How heavy metals in water affect living organisms?

Standards of doinking water Definition:

They are guidelines to ensure quality of water intended for human consumption. They are set by international organizations like WHO (World Health Organization).

Parameters	Parameter Name	Limit
Microbial Parameter	Escherichia Coli (E. Coli)	100mL
	Enterococci	100mL
Chemical Parameter	Arsenic	≤ 0.02 mg/L
	Lead	≤ 0.1 mg/L
	Nitrate	≤ 50 mg/L
	Fluoride	≤ 1.5 mg/L
Physical Parameter	pH	Typically, between 6.5-8.5
	Turbidity	≤ 1 NTU Nephelometric Turbidity Units

(b) Heavy metals in water and their effects on living organisms:

Heavy metals in water have following impact on living organisms

Heavy metals	Effect of Heavy metals on living organisms
Mercury (Hg)	It causes renal damage, affect fish and effects on fetus development.
Cadmium (Cd)	It causes Kidney damage, skeletal muscle damage and lung cancer in human beings.
Arsenic (As)	It causes skin lesions in humans and can be toxic to aquatic organisms.
Chromium (Cr)	It causes respiratory issues, reduce reproduction and lung cancer.
Lead (Pb)	It causes neurological damage in humans. It also causes hypertension.

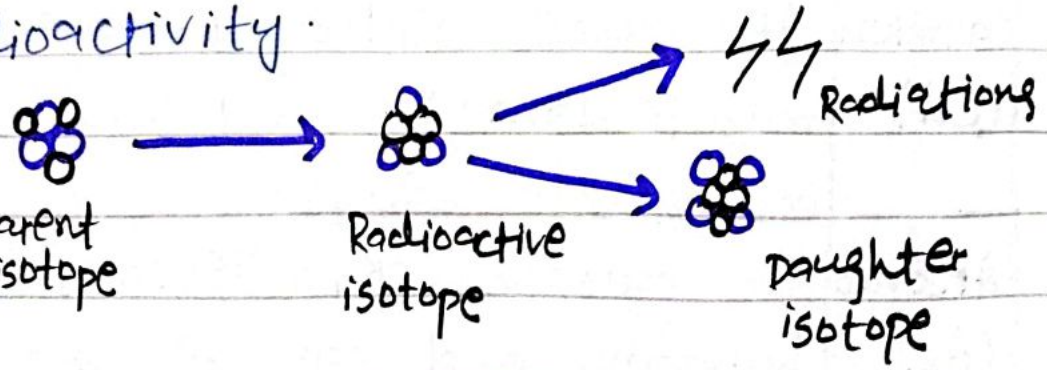
(d)

What is radioactivity. Discuss laws of radioactivity. Name 2 radioactive elements.

Radioactivity:

It is phenomenon in which unstable nuclei of certain

elements emit electromagnetic radiations: alpha, beta or gamma rays, in a process to attain a stable condition, measured in Curie or Rutherford units of radioactivity.



Discovered by:

Henri Bacquerel in 189

Laws of Radioactivity:

1. Radioactivity is result of decay of nucleus.
2. Nucleus's decay rate is independent of Temperature and Pressure.
3. Radioactivity depend on law of conservation of charge.
4. Physical and chemical properties of daughter nucleus different from mother Nucleus.
5. **Radioactivity decay law:** Probability per unit time that a nucleus will

decay is a constant, independent of time

Names of 2 radioactive elements

i. Uranium (U)

ii. Thorium (Th)