

General Instructions

1. Give numbering to headings.
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions.
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Write unit of the answer in ability section.
7. Explain mathematical steps and the reasoning for better score.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.
10. Wide page borders are discouraged. Should be reasonable.
11. Avoid writing wrong references.
12. Give more weightage to paragraphs expressedly asked part/s of the question.

the lungs to the left side of the heart. Pulmonary veins transfer it to the left atrium. Bicuspid valve opens up and draws the blood into left ventricle, the left ventricle transfers it to Aorta and then to the body.

Overall, human heart is an important organ for a human to remain healthy and fit.

✓
Ans B

Intro:

Introduction

Carbohydrates are the macromolecules. It is essential for human brain to work properly and smoothly. Moreover, carbs are the primary source of energy to the body. Carbs are in abundance in milk, rice, dates, barley and sweet fruits. However, the deficiency leads to ketosis.

⇒ Classification:

Carbs can be classified into three main categories based on number of sugar units they contain.

1. Monosaccharides:

Monosaccharides are the simplest carbohydrates and consist of a single sugar unit. They can't be divided further. And examples are, glucose, fructose, and galactose.

2

Disaccharides:

Disaccharides are carbohydrates composed of two monosaccharide units joined by a glycosidic bond. When they are divided through hydrolysis, they break into constituent monosaccharides. Examples are glucose + fructose = sucrose, glucose + galactose = lactose.

3

Polysaccharides:

They are complex in nature and are formed by the combination of multiple monosaccharide units. They have sugar units in abundance. They are used for energy storage. Some examples are starch, glycogen, and cellulose.

Thus, carbs are vital source of energy for human and for human brain to work properly.

Ans

Intro:

Water pollution is the contamination of water bodies, such as oceans, canals, streams and rivers and also the atmosphere, by harmful substances. These substances can be either natural or anthropogenic in nature. Water pollution cause stomach diseases and water borne diseases.

Types:

There are many types but some important are:

a Biological Pollution:

occurs when a harmful microorganism, such as bacteria, virus, etc. contaminate water sources and lead to waterborne diseases.

b Nutrient Pollution:

occurs when excessive amount of nutrients from agricultural run-off, sewage discharge and fertilizer use enter water bodies. It causes oxygen depletion and lead to "dead zones" where aquatic life can't survive.

c Chemical Pollution:

occurs when harmful chemicals such as, metals pesticides, industrial chemicals enter water bodies. This causes long term ecological imbalances, and disrupt food chain process.

Causes:

a Agricultural run-off:

Excessive use of fertilizers and pesticides in farming lands can lead to nutrient pollution. Rain water carries these to nearby rivers and other water bodies.

b Oil Spills:

Accidental oil spill or deliberate one can cause water pollution, harming marine life and coastal ecosystem.

c Land use practices:

Construction activities, deforestation and rapid urbanization can lead to soil

Erosion and Sedimentation of water sources.

Conclusively, water pollution is the contamination of water bodies and this can lead to health issues for humans.

Intro:

No doubt, the **Diagram?** the chief chemist of the body. The reason for this is its various important functions

and keeping overall body functional.

metabolism of nutrients:

It is important for metabolism of carbs, proteins and fats. It stores and releases glucose to regulate blood sugar levels, and converts excessive sugars into glycogen.

Detoxification:

Another important function is detoxification. It eliminates harmful substances, such as drugs, alcohol and other environmental toxins from the body. It breaks down the toxins and excretes them via urine or bile.

Storage of vitamins and minerals:

The liver stores vitamin A, D and B12 and also iron. It releases these into the bloodstream as required.

pH Regulation: The liver plays a

role in maintaining body's pH level. Acidic balance is increased and regulated by elimination of bicarbonate ions.

5. Bile production:

The liver produces bile, a greenish-yellow fluid that helps in digestion and absorption of fats in the small intestine and then ~~is~~ excreted via ~~faeces~~ faeces.

In conclusion, liver is considered chief chemist of the body due to its various functions such as, metabolism regulation, pH level regulation and detoxification.

Q 3

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Intro:

The kidneys are vital organs responsible for many important functions in human body. It

separates and removes nitrogenous waste from the ~~body~~ body.

1. Its role in urine formation:

Urine formation is a complex process and involves many components such as:

a. Renal Artery: It carries the blood towards kidney and filters it.

b. Renal vein: It carries the filtered blood out of the kidney.

c. Nephrons: It is the basic

Structural and functional unit of kidney. It filters the blood and forms urine.

d.

Ureter:

Detail and

diagram

missing.

A muscular tube is used as a way for urine to filterate to pass on. Peristaltic contractions of the muscle push the urine downward in the urinary bladder. And the urine is emptied by urethra completing the process of waste elimination from the body.

True kidney plays an important role in formation of urine, which is then excreted from the body along with wastes.

Aug 6

Intro

Remote sensing is a technique used to gather information about the earth's surface and atmosphere from a remote area, using satellite or airborne sensors. It is used for scientific exploration of the area of the planet without direct physical contact.

1.

Role in the environmental sciences. It helps in recognizing the macro features such as mountains, oceans, and forests. Through remote sensing environmental resources can be monitored, e.g. forest cover, vegetation.

Remote sensing helps in surveillance of glaciers and forests and their melting and burning. While drafting environmental policy regarding any area, it helps in identifying and addressing environmental issues. Furthermore, in times of catastrophe, it provides real-time data on floods, earthquakes and wild fire.

In a nutshell, remote sensing is a powerful tool for scientific research to gather information without coming in physical contact.

Ans 5 Intro:

Greenhouse effect is a thermal process in which the heat gets trapped into the atmosphere. It is a natural process: it is necessary for climate maintenance. If it malfunctions then the world will be in ice age.

Solar radiation including UV rays, and infrared rays trapped by the earth's surface and 80% is reflected back in space. Certain gases: CO_2 , CH_4 , N_2O , H_2O and O_3 have the ability to trap a portion of infrared radiation and warm the earth's surface.

Benefits of greenhouse effect:
There are plethora of

Benefits, such as, it regulates temperature. Earth would be much cooler without greenhouse effect. Greenhouse effect helps in a stable climate, providing a habitable environment for ecosystem and human civilizations to thrive. Furthermore, greenhouse gases like water vapor and CO_2 are vital for agricultural practices. They support the growth of crops and plants by trapping heat and maintaining suitable environment.

2 Contribution to global warming:

The natural greenhouse effect is beneficial for humans but the enhanced greenhouse effect has resulted in global warming, which refers to the gradual increase in the Earth's average surface temperature over time. Here is how it is done.

a. increased in trapping of heat:

with enhanced greenhouse effect, the infrared radiation is trapped and re-radiated to the Earth's surface.

b. climate feedback:

Global warming can trigger feedback loops in the climate system, exacerbating the temperature increase. For instance, ice and snow melt due to warming, less sunlight is reflected back in space, leading to

Leads warming.

c. Altered weather patterns:

More and more intense heat waves, droughts, storms and change in precipitation ~~occurs~~ patterns, affecting the ecosystem and human population.

d. Rising sea levels:

Polar ice caps and glaciers melting have led to ~~rise in~~ sea levels. This poses serious threat to coastal communities.

This greenhouse effect is a natural phenomenon and ~~has~~ many benefits such as, maintaining a ~~predictable~~ environment and giving a breathing space to human civilisations. However, enhanced greenhouse effect has given a ~~rise~~ to global warming which is concerning for the humans.

Quesd. Intro:

Food preservation methods are used to increase the shelf life of food, ~~preventing~~ it from ~~perish~~ and maintaining its nutritional value.

Food preservation is not a new method, during times of scarcity, various ~~methods~~ were used.

Some food preservation methods are.

1. Salting:

One oldest method of preservation of various food. Salt is

applied to food items, which draws out moisture and creates a hostile environment for bacteria.

2. Fermentation:

A preservation method where the microorganisms, such as bacteria or yeasts on food creates an acidic environment and stops the growth of harmful bacteria. such as, Yogurt, and Pickle.

3. Smoking:

Food is exposed to smoke, where the smoke dries the food and add antimicrobial properties, extending its shelf life.

4. Freezing:

A wide practice, where the temperature is set on freezing levels to inhibit the growth of microorganisms on food.

5. Canning:

It is the process, where the food is sealed in airtight containers and then heated it up to kill the bacteria inside. The heat kills enzymes that cause spoilage and hence result in longer shelf life.

conclusively, food preservation is used to extend the shelf life of foods. By food preservation techniques, food is preserved and not subjected to waste.