Part II

Section - I

Q No5 Differentiate between eukaryotic and prokaryotic Cell.

Eukaryotic Cell	Prokaryotic Cell
Eu means True Eukaryotic means True Nucleus	Pro means false Prokaryotic means false Nucleus.
Eukaryotic Cell have a definite Nucleus	Prokaryotic Cell not have definite Nucleus.
It contain Linear DNA	It contain circular DNA.
It have double membrane or membrane bounded organelles	It have no organelles.
Large Ribosome	Small Ribosome.
Multicellular or few unicellular	Unicellular.
Contain Mitochondria,	It has no

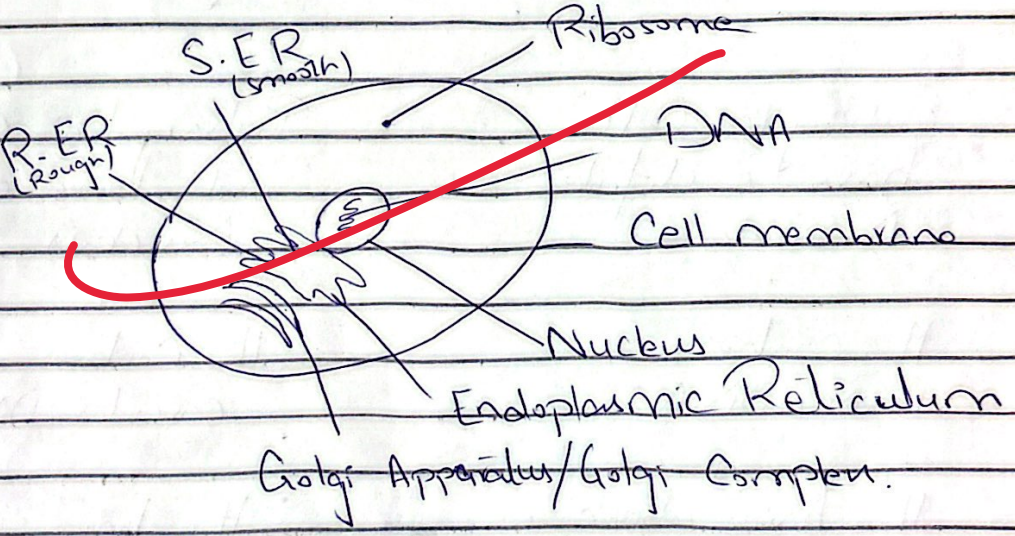
, endoplasmic reticulum.

no mitochondria, endoplasmic reticulum

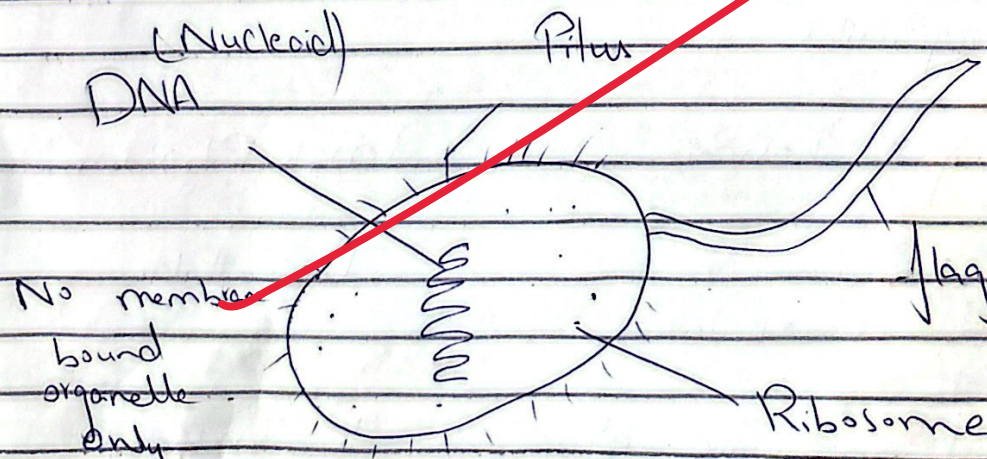
Plants, fungi, animals are some examples of eukaryotic cells

Bacteria and Archae are the examples of prokaryotic cells.

Difference b/w two in the form of their diagrams



Animal Eukaryotic Cell



Prokaryotic Cell

Q No 5 (b) What is Global warming? What is Kyoto Protocol?

What is Global warming:-

Global warming refers to the gradual increase of the temperature of the earth due to the excessive Co_2 emissions along with other pollutants.

Factors that cause Global warming:-

- Man made factors.
- Natural factors.

Man made factors:-

Deforestration:-

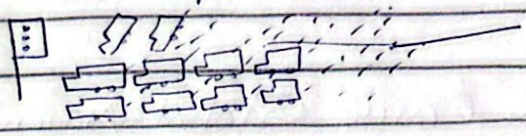
Man excess use of trees in their building materials resulted in deforestration. Trees are the natural source of removing pollutants from the atmosphere Deforestration alter the natural work.

Use of fertilizers and Pesticides:-

The use of fertilizers for the good production of crops and use of Pesticides for the control of Pests. Both fertilizers and Pesticides result in the pollutant increment.

Use of Vehicles:-

The use of vehicles results in various gaseous emissions Vehicles burn fossil fuels which emit a large amount of Carbon dioxide and other toxins into the atmosphere resulting in a temperature increase



gaseous emission

Chlorofluorocarbons:-

The use of air Conditions, refrigerators, have been adding CFCs into the environment which affects the atmospheric Ozone layers

Over population:-

The more people breath more is the Carbon dioxide emission and hence global warming.

Natural factors.

Volcanoes.

Volcanoes are one of the largest natural contributors to the global warming.

Forest Blazes:-

Natural fire erupt in the forests which results in the deforestration and hence global warming.

Effects of Global Warming:-

Climate change

Spread of disease

High Mortality Rates.

Loss of Natural Habitat

Rise in temperature

Threats to Ecosystem.

Q What is Kyoto Protocol.

Kyoto Protocol is an international agreement signed which enforced Countries to take step to Control green house gas emissions

It is applied to the seven green house gases.

Carbon dioxide (CO_2)

Methane (CH_4), Nitrous oxide (N_2O)

Per-fluro carbons (PFCs)

Hydrofluorocarbons (HFCs)
Sulfur Hexafluoride (SF_6)
Nitrogen Trifluoride (NF_3)

Target of Kyoto Protocol.
The Kyoto Protocol signed in Kyoto, Japan on 11 dec 1997 and entered into force on 16 feb 2005 aimed at reducing green house gas emissions by an average of 5% below 1990 levels over the 5 year period from 2008 to 2012.

Mechanism of Kyoto Protocol.
The Kyoto Protocol will work as
By reducing the emission of green house gases
Plantation
Re-forestation
Preventing de-forestation
Industrialization using cleaning and renewable energy.

Reasons of failure of Kyoto Protocol:-
It had no compulsion on developing countries.

India and China, the main pollutors were out of this agreement as they come under the developing Countries.

This placed their Competitors USA, Canada and Russia at a great disadvantage and hence USA withdrew itself.

⇒ Achievements of Kyoto Protocol:-

It was a step forward in a right direction.

It led to Paris agreement.

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Q No 5 c) Write a detail note on GIS

GIS:

GIS stands for geographic information system. It is a system designed to capture, evaluate, manipulate, handle and view all forms of geographical and spatial information and data.

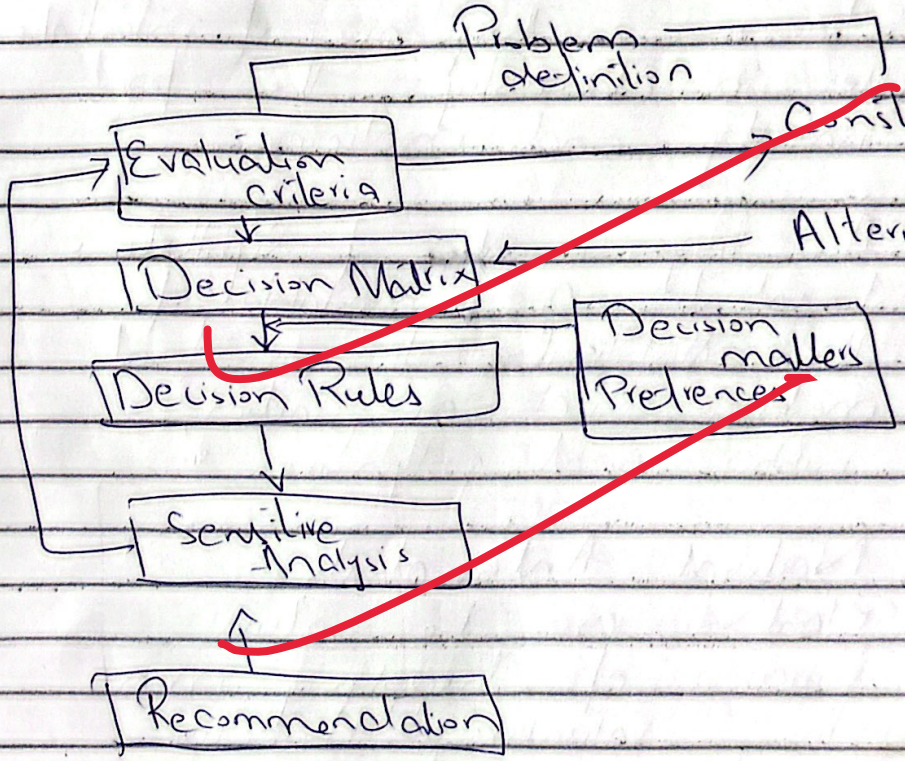
Advantages of GIS:

A GIS stores information on

geographical characteristics and their features.

These characteristics are recognized as representation of points, lines, regions or raster. Road records can be processed as lines, for example in the map of a city and boarders could be documented as zones, and aerial photos can be saved as raster data.

⇒ Flow chart of the process steps followed in GIS.



Q.No 5 d) Briefly describe Antioxidants.

Antioxidants:-

Antioxidants are defined as substances that when present in food, delay, control or inhibit oxidation and deterioration of food quality.

Antioxidants are compounds that inhibit oxidation.

Types of Antioxidants:-

Synthetic Antioxidants
Natural Antioxidants.

Synthetic Antioxidants:

- They are of potential use in chemistry, the food industry and medicine.
- A large number of synthetic antioxidants are available for the stabilisation of non-food materials such as plastics, rubber and polymers.

Natural Antioxidants:

Plants are the natural source of supplying man with valuable bioactive substances and thus

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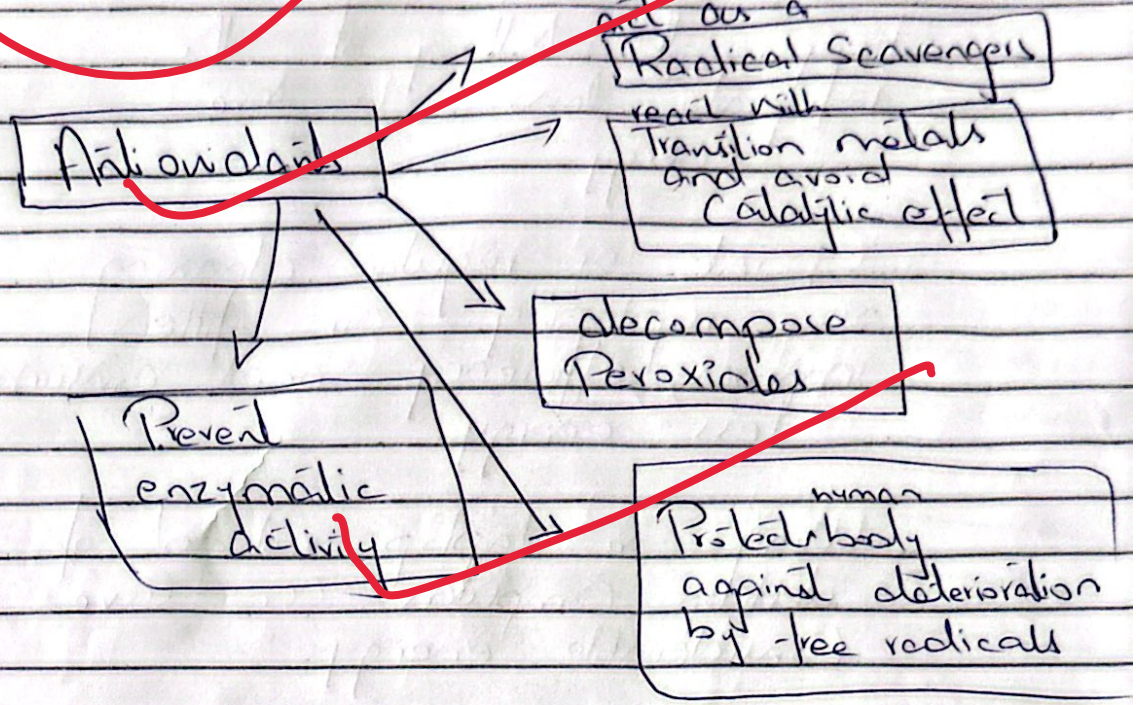
different plant products are being evaluated as natural antioxidants to improve the overall quality of meat and meat products.

Actions of Antioxidants



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Qb Enlist ten measures for energy Conservation and its Sustainable use.

Energy Conservation:

Energy Conservation is the act of reducing the usage and wastage of energy.

Measures for energy Conservations

Purchase devices and appliances which consume less energy.

Adapt small Power strips.

Keep the setting of the refrigerator low to save energy.

Operate or regular cleaning or replacing air filters improves efficiency and consumes less energy.

Using a laptop instead of desktop computers can save considerable energy.

Cycling is the best way to save fuel.

Walking instead of driving also saves energy.

Skip the dryer on a breezy day.

Sustainable Uses.

1. Saves the cost and

Dont leave spaces after every line. Work on presentation

and lowers your utility bills.

2 Prolongs the existence of fossil fuels.

3 Protects the environment.

4 Reduces pollution

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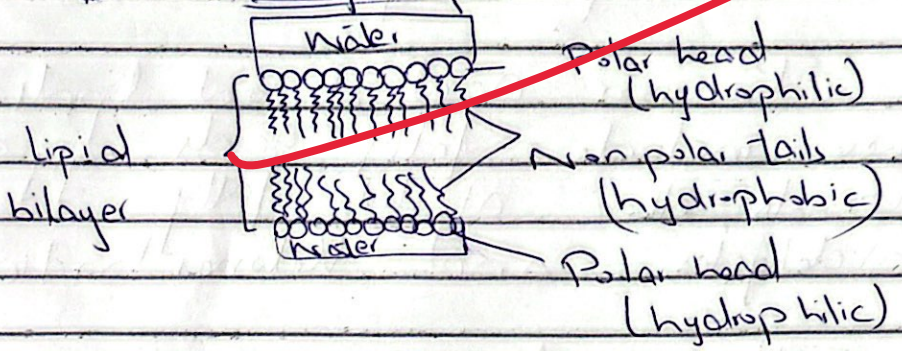
Explain complex concepts in simple terms.
Use real-life examples.
Include diagrams and flowcharts for competitive edge.
Discuss practical applications of scientific concepts.
Show all steps and working for calculations.
Use diagrams and graphs

Q No2 Briefly explain lipids. What are some major types? What are their functions?

Lipids:

Lipids are organic compounds that contain oxygen, hydrogen and Carbon and are the main constituent of the cell. Lipids are non-polar and are soluble in non-polar solvents. but are unsoluble in water as water is the polar and unable to dissolve non-polar.

=> Structure of lipid:



Types of lipid:

There are numerous specific types of lipids.

- Simple lipids
- Complex lipids
- Precursor and derived lipids
- Fatty Acids. (Saturated and unsaturated fatty acids.)

* Simple lipids:
Esters of fatty acids with various alcohols.
1 Fats: Esters of fatty acids with glycerol
2 Waxes: Esters of fatty acids with higher molecular weight monohydric alcohols

* Complex lipids:
Esters of fatty acids containing groups in addition to alcohol and fatty acids. Such as Phospholipids, Glycolipids, other Complex lipids.

* Precursor and derived lipids.
These include fatty acids, glycerol, steroids, alcohols, fatty aldehydes and ketone bodies.

* Fatty acids.
Fatty acids are carboxylic acids (or organic acid), usually with long aliphatic tails

Functions of lipids:

Waxes are found almost everywhere. The fruits and leaves of many plants possess waxy coatings, that

can safeguard them from small predators and dehydration.

Phospholipids:

Membranes are primarily composed of phospholipids

Cholesterol:

Cholesterol is an important component of cell membranes and is also the basis for the synthesis of other steroids, including the sex hormones estradiol and testosterone as well as other steroids such as cortisone and vitamin D

What is Hydrogen Bonding? Give elaborating structures and examples

Hydrogen Bonding:-

Hydrogen bonding is based on dipole dipole attraction between molecules & Compounds.

Hydrogen Bonding is a bonding of hydrogen atom which is a partial positive with the electronegative atoms.

Conditions for Hydrogen Bonding:

More electronegativity:-

More the electronegativity, more the strong hydrogen bonding.

Small Size:-

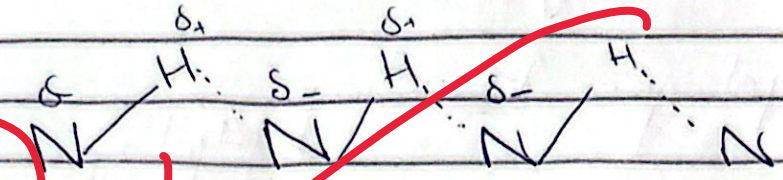
Small the size of the electronegative atom, more will be the good bond.

=> Structures elaborating Hydrogen Bonding:-

Ammonia:-

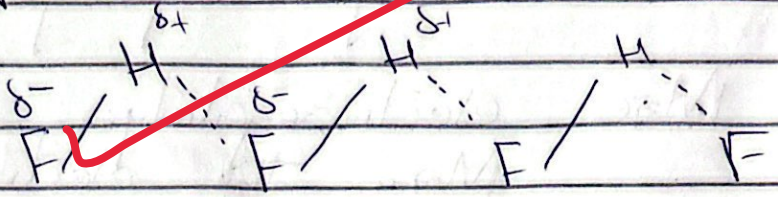
Hydrogen act as a partial positive δ^+ and Nitrogen act as a partial

negative δ^-



⇒ Flourine act as most electronegative element

-Flourine being the most electronegative element bind very strongly with hydrogen through hydrogen bond



Q No What is Nervous System.

Nervous System:-

The Nervous System is the controlling and regulating center of our body.

The Human nervous refers to the brain, nerves, Spinal Cord, ganglia and

other receptor organs that receive and interpret stimuli

Functions of the Nervous System:

The Nervous System Controls
Brain growth and development
Sensations (such as touch or hearing)
Movement, balance and coordination
Learning and memory
Healing and rehabilitation
Thought and emotion

Human Nervous System