20/40

QUESTION 2

(b) Enzymes:

Enzymes are proteins that act as a catalyst for a chemical reaction. They are produced in biological organisms and are used to speed up a chemical reaction taking place within that organism.
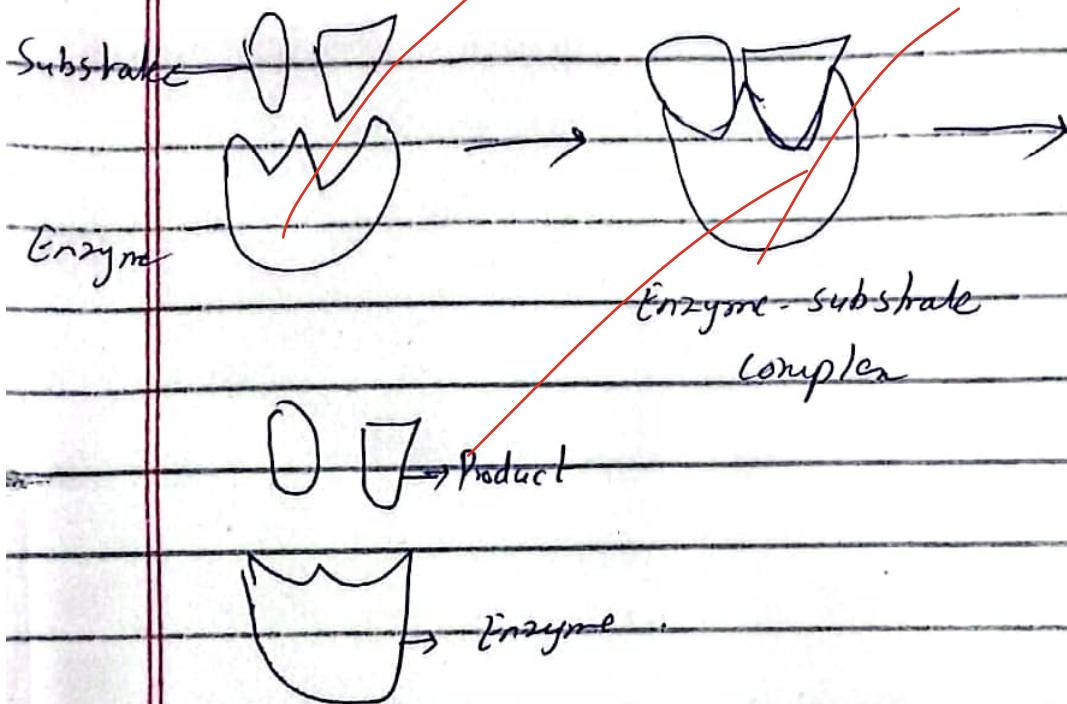
Co-enzyme:

The non-protein part of enzyme is called co-enzyme

Mechanism of Action.

Enzyme follow a lock and key model. As every lock has a specific key, every enzyme has a specific substrate. So, enzymes are substrate specific

and do not act with other enzyme.

Substrate

Enzyme

⟶ Product

⟶ Enzyme

Enzyme-substrate complex

Lock and Key Model

Characteristics of Enzyme

Every enzyme has the following characteristics:

* **Specificity**

Enzyme are substrate specific and do not act on other chemical reactions with diff substrate

molecules

* **Efficient:**

Enzymes are highly efficient and can speed up a chemical reaction by 10^{20} folds.

* **Reversible Direction:**

Enzymes can act from both the sides of the reaction and can work in the of reversible direction

* **Protein Nature:**

Enzymes are usually protein in nature but do have some part of non-protein element

* **Iso-enzyme:**

Iso-enzymes are enzymes that act on the same chemical reaction but are chemically and

physically different from each other.

(c)

Introduction:

There are a number of environmental challenges being faced and a transition in energy system is required to curb the situation. In this scenario, a shift from non-renewable source of energy to renewable source of energy would be pivotal in managing environmental concerns raised "by consumption of)"

Reducing environmental cost through renewable energy:

By using the renewable sources of energy in place of non-renewable sources that create

tremendous pollution in the environment. Some of the ways and reasons it would benefit are as follows:

* **Release of lesser pollutants in air:**

   The use of renewable energy sources like solar energy, wind and hydro energy would release lesser or no pollutants in the air at all.

* **Cheaper sources of energy:**

   The renewable source of energy are cheaper as compared to the use of fuels, natural gas and oil and other sources.

* **No Toxins Runoff in Water:**

   The water bodies remain

protected from the industriall spillovers and runsoff & filled with deadly pollutants and toxins. This will impact the environment

* Safeguarding wildlife from destruction:

The use of natural gas, oils and petroleum for energy productive harms wildlife greatly. The renewable sources like Sun, wind, water safeguard the wildlife and their natural habitat.

* Reduced waste and disposal:

The renewable sources of energy do not produce much waste and the ones produced can be easily dissoped off as compared to non renewable ones.

Conclusion:

So, the renewable sources of energy are better off for the environment as compared to the non-renewable energy sources.

(d) Remote Sensing:

Remote Sensing is a technology and a phenomenon that allows to receive and sent information without physically contact with the device. It This concept is applied in all the devices used in the world today to communicate with each other.

Principle:

Remote sensing is based on receiving and sending signals to the satellites orbiting the earth at certain angles. The waves from the device are sent to the

satellite. Satellites capture the signals, bondate them and transmit them to the other receiving body and device. All of this happens in split seconds even milliseconds. The signals are sent and received through waves that the satellites are able to capture at certain frequency and wavelength.

Environmental Applications:

Remote Sensing is being used to benefit the environment and holds multiple applications. as follows:

* ## Weather Forecasting:

Satellites capture all the weather elements and creates forecasts that are received by the ground objects on Earth.

* **Climatic conditions:**

The changing climatic conditions over a period of time can be known by using remote sensing technology used in many devices

* **Warning of Natural disasters:**

Remote sensing is used to capture the changing environment and the weather conditions that allow to forsee incoming natural disasters

* **Helps in Agricultural techniques:**

Remote sensing helps in managing crops and checking the quality of crops in terms of insechudes, nutrients and pesticides.

3·5

QUESTION 3:

Introduction:

Malaria and Dengue are both diseases that can occur to any human being by the bite of a mosquitoes. Usually both of these diseases have the same overlapping symptoms and are caused by the same reasons of the bite of a mosquitoes but not the same one.

Symptoms of Malaria and Dengue:

Both of these diseases have more or less some symptoms which are as follows:

① High level of temperature and

extreme level of fever happen to the patient fighting Malaria or Dengue.

(2) Extreme weakness and fatigue occurs to the fighter patient

(3) Restlessness and lack of sleep occurs.

(4) Extreme fall in the number of platelets in the body that can damage the human system they and the normal functioning of body

(5) Stomach aches and diarrohea can also accompany dengue and malaria sometimes.

(6) Loss of body weight and fats occur in both the cases

Preventions of Dengue and Malaria.

Both have more or less same precautionary measures which

are as follows:

1. Protection from the mosquitos especially the mosquitos that cause dengue and fever malaria

2. Avoid sitting in open air and in unhygienic conditions

3. Healthy diet and food can strengthen the body against such attack

4. Create hygienic environment around.

5. Drinking safe, clean environment to avoid the birth of germs and mosquitos

3.5

(c) Eutrophication

It is a phenomenon that leads to the excess of nutrients in the water bodies such as lakes, ponds. The

excess of sulphur and nitrogen in the water can lead to excessive nutrient. Creating algae blooms on the surface of water.

Causes

* The increase of in nutrients like sulphur and nitrogen in water
* The spill off by industries and agricultural areas and crops in water
* The release of pollutants, toxins and fumes in air that can create acid rains, adding acid in water bodies
* Deadly pollutants percolating in the sea bodies and oceans
* Excessive use of insecticides and pesticides polluting the nearby water areas

Effects:

The effects of eutrophication are as follow.

* The excess of pollutants in water is harmful for water bodies

* Sunlight and Oxygen unable to enter the water bodies due to presence of algae bloom and plants on water surface

* The shortage of oxygen in the water for marine animals Proves fatal for water bodies

* Unable to use the water as it gets unusable due to algal blooms and excessive deadly nutrients in the water.

* The quality of water decreases and makes it unsure unuseable for drinking, swimming or fishing

(d) GIS	GPS
* GIS stands for Global Information System	* GPS stands for global positioning system
* It is used for data management	* It is used for locating movement and position
* It is a system for capturing, analyzing the global data	* It is used to locate objects and vehicles devices around the world
* Multiple software and hardwares are used	* Satellites are used to perform
* Creates maps, models and analysis for decision making	* It or produces real-time live location of devices around the world
* Used for Urban planning and Environmental	* Used for navigation and tracking tracking

management

* Involves complex analysis and decision making	* Simple and easy location determination
* Used in all ~~devices~~ technological devices	* Used in tracking devices in any and all devices