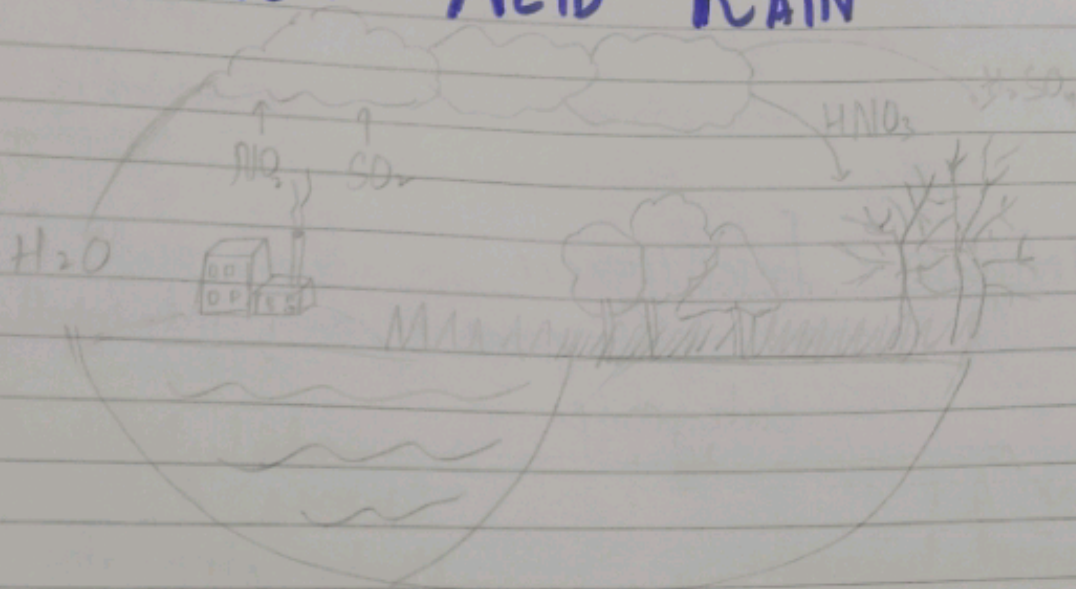


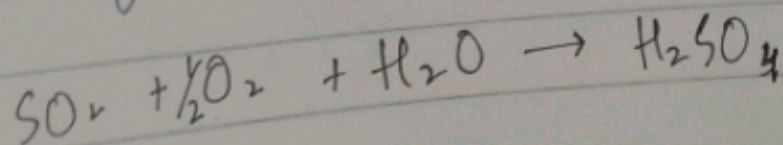
Q: Write a short note on following:

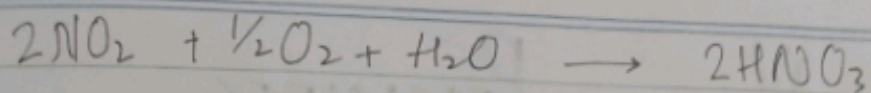
1) ACID RAIN.

NOTE: ACID RAIN



It is form of precipitation with a pH of less than 5 whereas regular rain has a pH of around 5.6. Acid rain is caused by a chemical reaction that begins when compounds like sulphur dioxide (SO_2) & nitrogen oxides (NO_x) are released into the air. These substances rise very high into the atmosphere, where they react with water, oxygen & other chemicals to form more acidic compounds.





Acid from atmosphere return back to earth in one of two forms:

- ① WET → falls as rain, fog, snow & vapour
- ② DRY → over trees and soil.

Causes of Acid Rain:

→ Caused by large scale emission of acidic gases into the atmosphere from thermal power plants, industries, fossil fuel combustion & vehicle emissions.

= Other human activities which contribute in acidic rain are deforestation, waste incineration, chemical manufacturing & mining activities.

Effects of Acid Rain:

- lethal to marine & fresh water inhabitants
- It causes leaching of essential mineral & soil.
- Acid rain corrodes metal, marble, painted surface, slate & stones.
- Reduces rate of photosynthesis
- Attacks plant foliage & roots which make it prone to pests, diseases & other pollutants

SHORT NOTE: PESTICIDES

Pesticides are chemical compounds that are used to kill pests including insects, rodents, fungi & unwanted plants (weeds). Over 1000 different pesticides are used around the world. Pesticides are used in public health to kill vectors of disease, such as mosquitoes & in agriculture to kill pests that damage crops.

TYPES

Biodegradable

Non-Biodegradable

Pesticides are also referred to by the type of pest they control.

- Biodegradable Pesticides: that break down into harmless compounds by bacteria & other living organisms.
- Non-Biodegradable Pesticides: they take months & years to break down.

Classification by Pest Types they kill:

- Insecticides — Insects
- Herbicide — Plants
- Rodenticides — Rodents (rats & mice)
- Bactericides — Bacteria
- Fungicides — Fungi
- Larvicides — Larvae

SHORT NOTE: ENDOCRINE SYSTEM

The endocrine system is a network of glands in your body that make the hormones to maintain countless bodily functions. Its glands create & release hormones that control almost all processes in your body. They coordinate your metabolism, growth & development, & control your emotions, mood, sexual functions, and even sleep. Endocrine system controls how hormones are released, & send those hormones into your bloodstream so they can travel to other body parts.

MAIN GLANDS OF THE ENDOCRINE SYSTEM

- Pituitary gland (Master gland)
- Thyroid gland
- Adrenal gland
- Pancreas
- Ovaries (in females)
- Testes (in males)

Hormones are chemical messengers that help regulate various body functions. The endocrine system works together with the nervous system to maintain

Umbr

The shadow formed by a point source of light when an opaque object is placed in front of it is called UMBRA

• UMBRA is a dark shadow.

• It is formed alone on screen.

Penumbra.

The shadow formed along with UMBRA from an extended source of light when an opaque object is placed in front of it is called PENUMBRA

• PENUMBRA is a faint shadow

• It is formed along with UMBRA.

Heavy Water

• Heavy water is a form of water where the hydrogen atom is replaced by deuterium

• Primary of interest in nuclear reactors is some chemical reactions due to its unique properties

Denser than regular water due to the presence of deuterium

Hard Water.

Hard water is water that contains high level of dissolved minerals primarily calcium & magnesium ions.

Can cause scaling in pipes & appliances due to buildup of minerals.

Density is similar to that of regular water.

Q7: What are minerals? For most of the part minerals are constituted of eight elements, name any six of them. State the six characteristics that are used to identify minerals.

Minerals:

Minerals are those elements on the earth $\&$ in food that our bodies need to develop $\&$ function normally.

- 1- Oxygen
- 2- Silicon
- 3- Aluminium
- 4- Iron
- 5- Calcium
- 6- Sodium
- 7- Potassium
- 8- Magnesium

Characteristics:

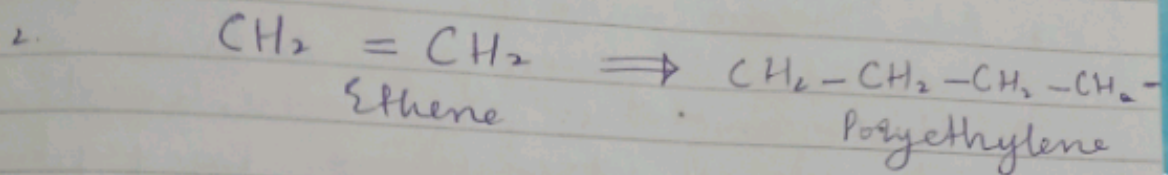
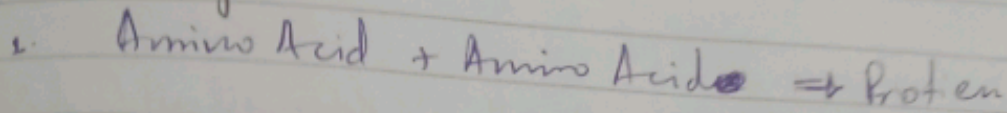
- Color
- Density
- Luster
- Repraction
- Magnetism
- Hardness
- Radioactivity

Q3: Define any five with examples

a. Polymerization:

It is a chemical reaction in which small molecules (monomers) combine to form large molecules (polymers).

Example:



3. Other examples include:

\rightarrow Formation of polyvinyl chloride from vinyl chloride.

\rightarrow (Propene) monomers combine to form Polypropylene (Plastic)

b. Ecosystem:

An ecosystem is a community of living & non-living things that interact with each other in a specific environment. It includes:

Biotic Factors (Plants, animals & microorganisms) & Abiotic Factor (water, air, soil, sunlight, Temperature)

Example: A pond Ecosystem

Biotic Factor

Plants: Algae, water lilies

Animals: Fish, Frog, insects

Microorganisms: Bacteria, Protozoa

Abiotic Factor

Water, Sunlight, Soil,

Temperature.

e. Antibiotics:

Antibiotics are drugs that kill or inhibit the growth of microorganisms, such as bacteria, fungi or protozoa. They are used to treat infections caused by these microorganisms.

Examples:

1. Beta-lactam antibiotics: Penicillin, Cephalosporin
2. Macrolides: Erythromycin, Azithromycin.
3. Fluoroquinolones: Ciprofloxacin, Levofloxacin.
4. Tetracyclines: Tetracycline, Doxycycline.
5. Aminoglycosides: Streptomycin, gentamicin.
6. Antifungal Antibiotics: Fluconazole (Diflucan)
Nystatin (Mycostatin).

d. Renewable energy resources:

Natural resources that can be replenished over time t_1 are a sustainable way to generate ~~clean~~ energy. They are an alternative to fossil fuel, which are finite t_1 contribute to climate change.

Examples:

1. Solar Energy
2. Wind Energy
3. Hydro Energy
4. Geothermal Energy
5. Biomass Energy
6. Hydrogen Energy.

e. Gene:

Gene is basic unit of heredity that carries information from one generation to next. It is segment of DNA that encodes a specific set of instructions for the development, growth, and function of an organism.

Example:

The gene for blue eye color is located on chromosome 15 with a specific sequence of nucleotide (A, C, G & T) that codes protein for eye color.

This is how one person has particular gene on specific location on DNA -

f. Software:

Software refers to a set of instructions or programs that tells a computer what to do. It is a collection of data, algorithms & instructions that are stored electronically & used to operate computers, manage data & interact with users.

Examples:

1. Operating System
2. Web Browsers
3. Mobile Apps
4. Anti-Virus Software
5. Graphics & design software