

Question 1

- A) Explain Hepatitis. (5)
- B) Explain the salient features of COP-28. (5)
- C) Define Water Pollution. Give its types, causes and solutions. (5)
- D) Explain the structure and functions of Kidney. (5)

Question 2

- A) Explain Green House Effect and give its importance. (5)
- B) Why cell is considered as the basic unit of life? (5) *Structure of cell*
- C) Give the structure and functions of Human Eye. (5) *↳*
- D) Explain the components and applications of GIS. (5) *Receptors Satellites*

Question 3

- A) Write a short note on Polio. (5)
- B) Define Biofuels. Explain the production, benefits and applications of Biofuels. (5)
- C) Explain the working of Human Heart. Give the causes of Heart attack.
- D) Explain the effects and measures of Global Warming with respect to Pakistan. (5)

Subject: GSA

Section-II

Question: 1

A) Explain Hepatitis.

Solution:

1. Hepatitis:

"A medical condition characterized by inflammation of liver leading to damage and scarring"

Types of Hepatitis:

Several types of hepatitis have been diagnosed so far. Prominent among them are:

1. Hepatitis A:

A contagious and acute form which spreads via contaminated foods.

2. Hepatitis B:

A contagious and chronic form which spreads through bodily fluids.

3. Hepatitis C:

A chronic form, which is transmitted blood to blood contacts.

4. Hepatitis D:

Rarely diagnosed disease mostly in hepatitis C patients.

5. Hepatitis E:

Contagious disease spreading via unhygienic food and water.

Causes of Hepatitis:

Hepatitis an illness characterized of liver is caused by disorders numerous factors including:

- i) Viral infections
- ii) Auto immune responses
- iii) Medications and toxins
- iv) Alcohol abuse

Symptoms:

Hepatitis is characterized by following symptoms, namely:

- i) Fatigue
- ii) Nausea and vomiting
- iii) Abdominal pain
- iv) Yellowing of eyes and skin (Jaundice)

Treatment:

Proper treatment to cure hepatitis are:

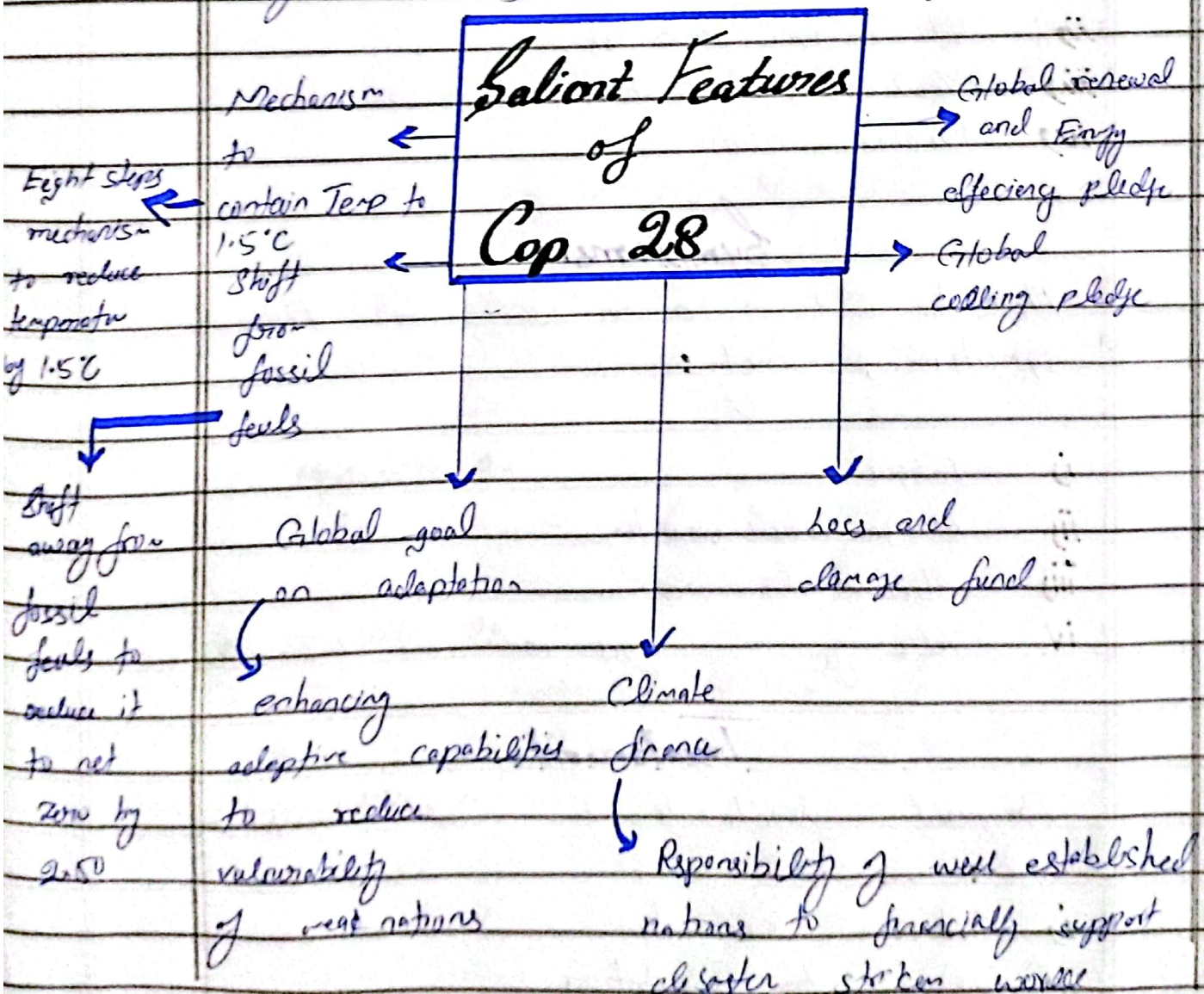
- i) Antiviral medications
- ii) Liver transplantation

B) Explain the salient features of COP 28.

Solution :

Introduction

COP 28 was the largest summit of its time bringing 197 nations representatives together at one forum. It was held from Nov. 30 to Dec. 12, 2023, with the purpose of addressing alarming situation caused by drastic climate change.



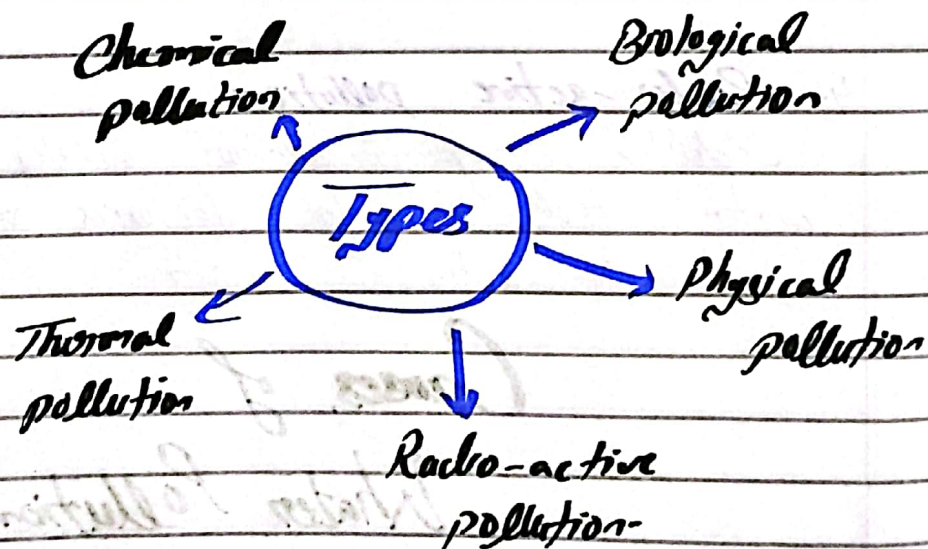
C, What is water pollution.
Give its types, causes and solutions.

Solution:

Water Pollution:

“Contamination of water bodies like rivers, lakes, oceans and underground waters with harmful substances putting lives of aquatic and land animals at risk is called water pollution”

Types of Water pollution



Details of Types

Depending of types of pollutants, water pollution is classified into

numerous categories, discussed below:

1. Chemical Pollution:

Addition of harmful pollutants in the form of chemicals from industries and agriculture, into water bodies.

2. Biological Pollution:

Contamination of water bodies by harmful substances released by big bacteria, fungi and algae.

3. Physical Pollution:

Spillage of water bodies by physical factors like sediments, rocks and heat.

4. Radio-active pollution:

Addition of nuclear wastes into water bodies by factories results in radio-active pollution.

Cases of Water Pollution

Water pollution is mainly caused by:

1. Industrial wastes
2. Agricultural wastes

3. Poor wastewater management
4. Plastic's poor dumping
5. Domestic wastes

Solutions:

Practical and possible solutions to control water pollution may be:

- i) Effective wastewater treatment system
- ii) Reduce industrial and agricultural waste
- iii) Use of eco-friendly products
- iv) Educate public on hazardous effects of pollution

D, Explain structure and function of kidney.

Solution:

Introduction:

A pair of bean shaped structure present in body with complex composition and multifaceted functions perform crucial role in maintaining overall health of organisms.

Structure of Kidney

Kidneys are composed of following vital parts collaborating to assist

their features.

1. Outer layer
Fibrous capsule

2. Middle layer
Cortex containing nephrons

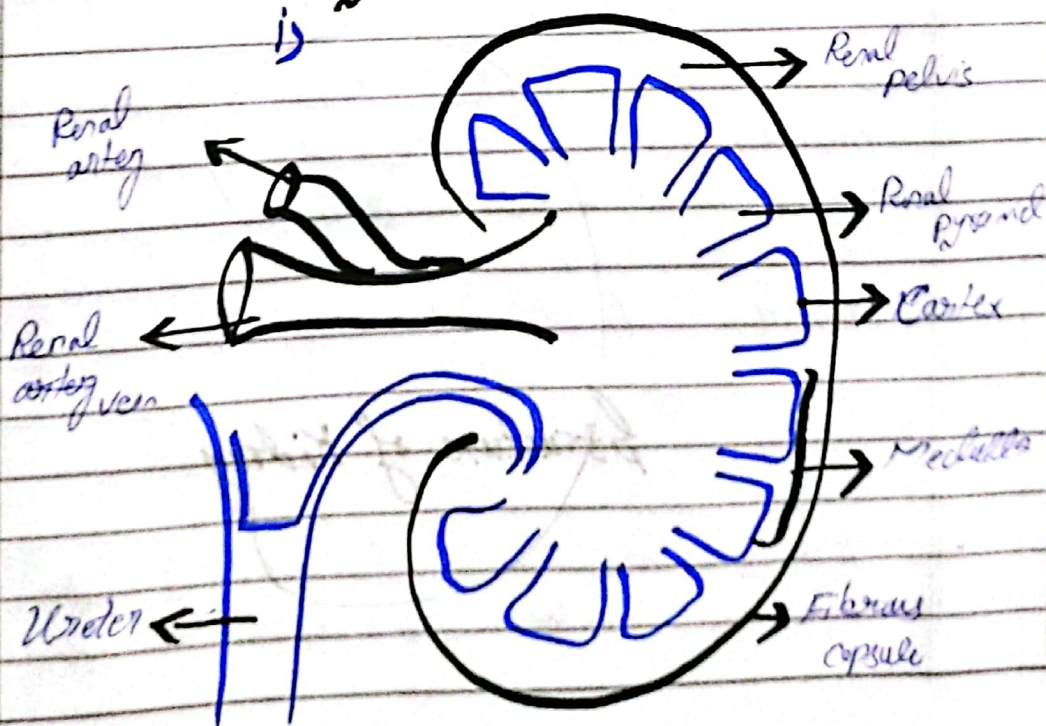
3. Inner layer
Medulla consisting of renal pyramids

4. Nephron:

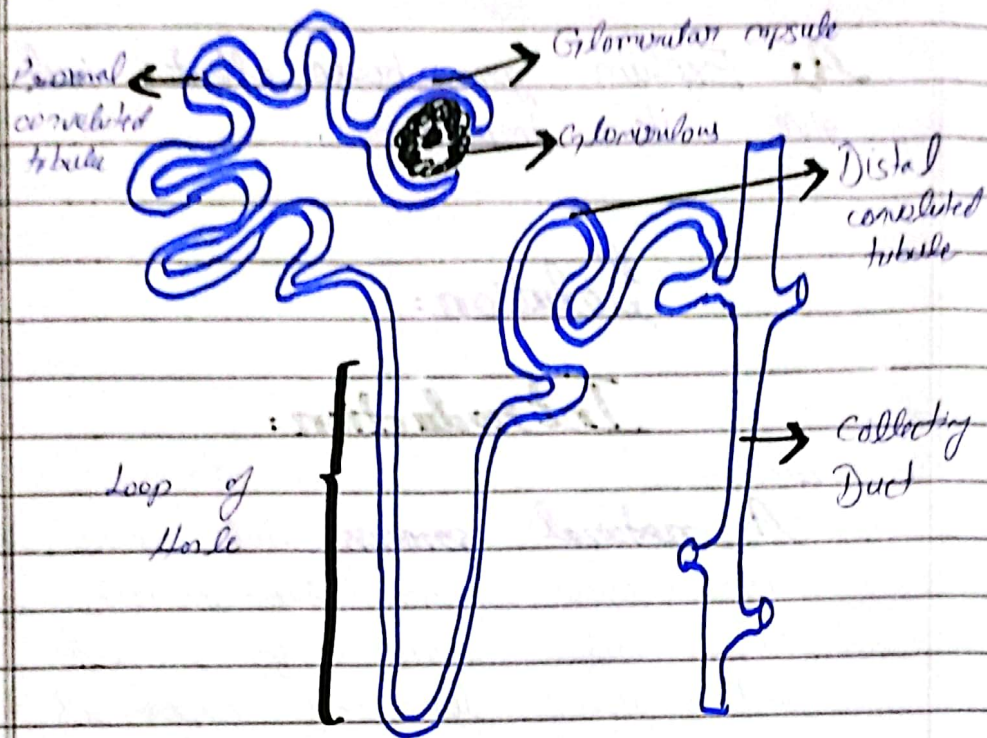
It is basic unit
of kidney and is comprised of:

- i) Glomerulus (cluster of capillaries)
- ii) Proximal convoluted tubule
- iii) Loop of Henle
- iv) Distal convoluted tubule
- v) Collecting duct

Diagrammatic Description



ii) Nephron



Functions of Kidney

Kidney performs numerous vital functions to help body waste properly.

i) **Re-absorption:**

of vital nutrients

ii) **Filtration:**

of wastes and productive nutrients

iii) **Secretion:**

of wastes to urine

iv) **Excretion:**

of urine via bladder

v) **Regulation:**

of pH, electrolytes, blood pressure, glucose, blood production

Question-2

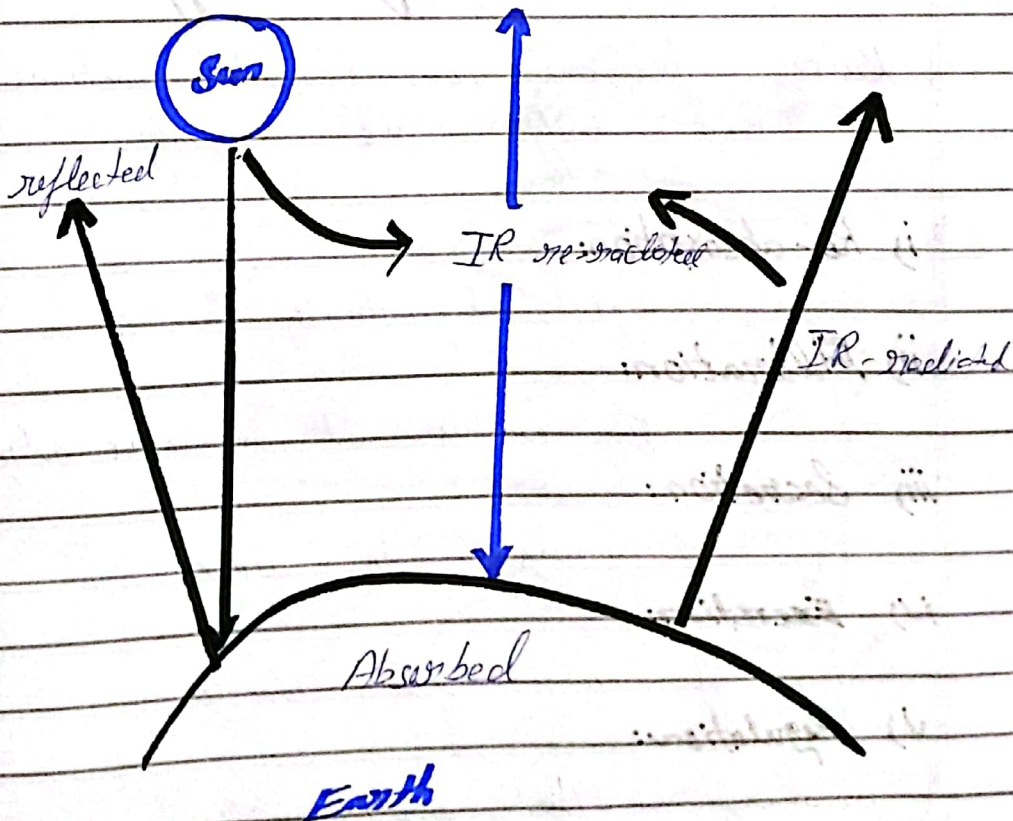
A, Explain green house effect: and give its importance.

Solution:

Introduction:

"A natural process that occurs when some gases like methane, CO₂ and water vapours trap heat from sun to keep earth warm enough to support life."

Diagrammatic Description



Importance of Green House Effect

Green house effect is of great importance for sustenance of life on earth. Discussed below are its few crucial roles played for environment, earth and life on it:

a) Regulation of Earth temperature:

Green house effect regulates earth's temperature essential for survival of life.

b) Support for growth of plants:

Green house gases like CO_2 , methane are essential for plant growth.

c) Helps complete and repeat water cycle:

Green house effect helps in completion and repetition of water cycle to make weather tolerable.

d) Effects weather patterns:

Green house effect shapes and impacts global weather patterns across globe.

e) Supports biodiversity:

Stable ecosystems are product of green house gases (effect) resulting in diversity and evolution of species.

f) Necessary for agriculture:

Suitable environment provided by green house effect supports agriculture sector.

g) Promises Stable economy:

Green house effect help in pre-climatic change planning to stabilise economy.

B) Discuss cell as basic unit of life.

Solution:

Introduction:

"Cell is the basic structural and functional unit of living organism, often referred to as building block of life"

Cell as basic unit of life:

i) Functions in living organisms:

Cell being a basic unit of life carries on various necessary functions in living organisms needed for survival. It performs functions, namely metabolism to enable body to work, reproduction to continue existence of life, and response to outer changes to protect body from harm.

ii) Growth and Development:

Cells organise to form tissues which combine to

form organs to compose a complete organism. All this starts with growth and development of a cell and ends up at a complex form of organisms.

iii) Transfer of genetic information:

Genetic material in cells (DNA, RNA) contain genetic make up and enable cells to transfer characteristics of parents to new generations. Cells are also crucial in this transfer and adaptation of genetic make up.

iv) Homeostasis:

Cells play a significant role in regulating internal processes like pH, body temperature and nutrient level.

v) Supports in evolution of life:

Cells evolve continuously to adapt to changing environmental conditions supporting survival of life on earth.

C) Explain structure and functions of human eye.

Solution

Introduction

Human eye is a complex organ with multifaceted functions, prominently of enabling humans to see what exists around them.

Structure of Eye:

Human eye is composed of numerous parts discussed below:

1. Cornea:

Front most transparent layer which allows light to enter structure of eyes.

2. Iris:

Coloured part of eye controlling amount of light entering eye.

3. Pupil:

An opening in the iris, which regulates light.

4. Lens:

Clear part of flexible enough to focus light from source.

5. Ciliary Muscles:

Muscles around lens playing role in convergence of light by lens.

6. Retina:

An area containing photoreceptors to form image after detection of light.

7. **Choroid:**

A source of supply of blood between sclera and retina.

8. **Sclera:**

The outer white tough layer of eye.

9. **Macula:**

Central part of retina responsible for sharp vision.

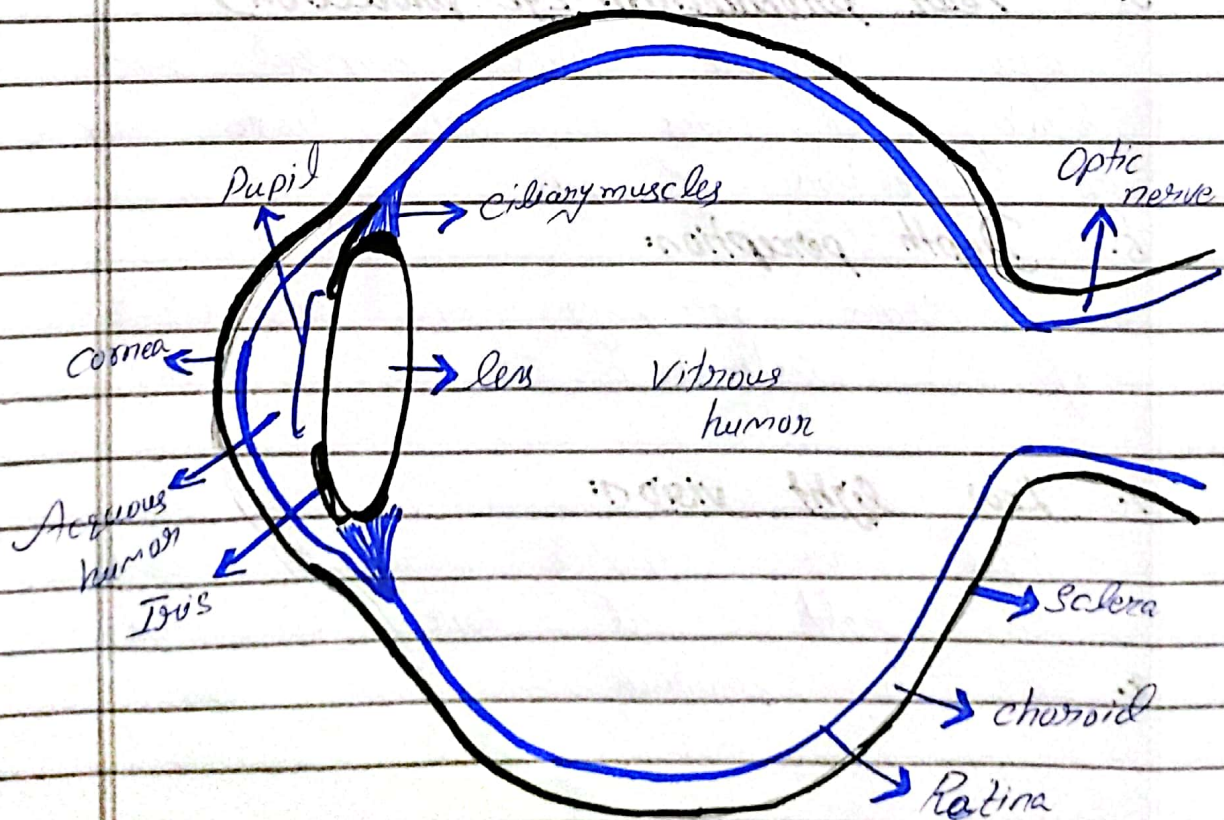
10. **Vitreous humor:**

a clear gel filling eye to protect eyes.

11. **Optic nerve:**

A source of transmission of signals to brain to interpret image information.

Diagrammatical Description



Functions of Eye

1. Identification of objects:

The most important function performed by human eyes is to identify the objects big, small, round, flat around.

2. Differentiation of objects:

Eyes are able enough to differentiate between objects around humans.

3. Colour recognition:

Reds and cones help eyes to recognize colours of different objects.

4. Observation of surrounding:

Surroundings are observed with the help of eyes.

5. Tear production (Eye protection)

Eyes produce tears coupled with blinking of eyes, with basic purpose of protection of eyes.

6. Depth perception:

Brain accompany eyes in calculation of distances.

7. Low light vision:

Eyes are capable enough to adapt in light and look at objects

8. even in darkness