

Date: _____

GENERAL SCIENCE

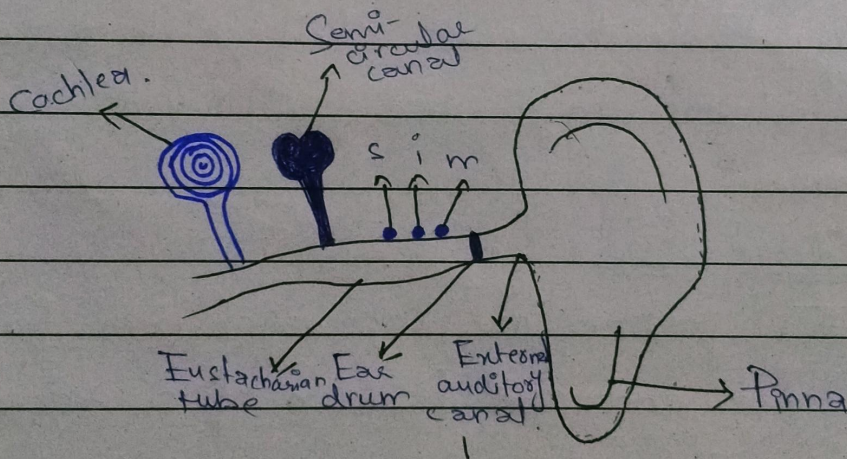
Day: MTWTFSS

Q Draw the structure of human ear and briefly explain its functions

Human Ear:

Ear is a sensory organ of human body which is responsible for hearing.

Schematic Representation of Human Ear Structure:



Components of Human Ear:

Human Ear is mainly divided into three components:

1- Outer Ear:

Outer Ear is mainly responsible for initial propagation of sound waves. It is divided into three main parts:

a. Tinna: It is the outermost part of ear. It is responsible for initial interaction and propagation of sound waves.

b. External auditory Canal: This part of auditory canal connects outer ear to the middle ear. It is responsible for propagation of sound waves by serving as pathway.

c. Ear Drum / Tympanic Membrane:

This part of ear serves as drum.

When sound waves strike with it, the vibrations begin and push sound waves forward.

2. Middle Ear: ...

This part of ear is responsible for balance and amplification of sound waves. It consists of two main parts:

a. Ossicles: It comprises of three tiny bones which collectively amplifies the sound waves.

- Malleus
- Incus
- Scapes

b- Eustachian Tube: This tube extends to the back of nose to maintain the balance and pressure for propagation of sound waves. It has mucus layer similar to Throat and nose.

3- ^{Inner} ~~Outer~~ Ear:

This part of ear is mainly responsible for hearing. It has two main parts:

a- Semi-circular canal: It is the fluid-filled tube responsible for maintaining ear and body balance.

b- Cochlea: It is the hearing part of ear. It converts sound waves into electrical signals. Auditory nerves transmit these signals to brain for deriving the information.

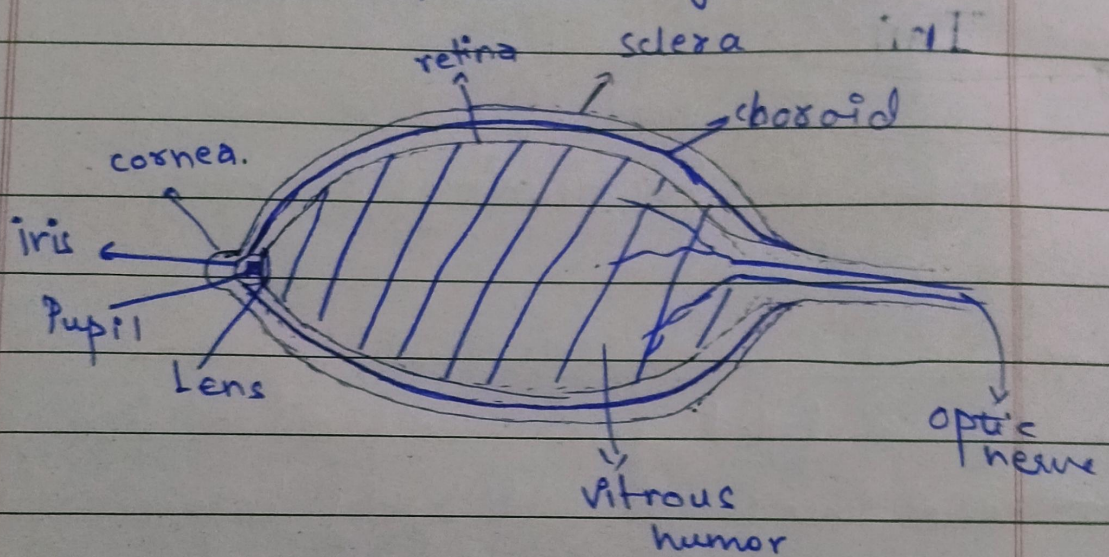
Q. Draw the structure of human eye and briefly explain its functions.

Human eye:

It is a sensory organ in human body which is responsible for vision.

Its working is similar to camera as it focuses light onto a film.

Structure of Human eye:



Components of Eye and their functions:

1- Sclera:

It is the outermost part of eye.

It is white in colour and serves for protection of eye.

2- Choroid:

It is the red-coloured region of eye.

It is because it is filled with red capillaries that are responsible for

nourishment of eye by providing nutrients and blood.

3- Cornea:

The vision process begins with cornea. Light first interacts with it and its bending or refracting takes place.

4- Pupil:

Light enters in pupil from cornea.

It is muscular structure that controls movement of iris.

5- Iris:

It is known as coloured part of the eye. It is a small opening in pupil which passes the light to lens.

6- Lens:

Most of the refraction of light occurs at cornea. But, lens is responsible for focus at near and distant objects.

It contracts to focus at near object and relaxes to focus at distant object.

7- Vitreous Humor:

It is the fluid-filled region of eye that maintains fluid balance and controls the movement of lens in eye.

8- Retina:

- This region of eye is mainly responsible for image formation. It possesses rods and cones which are responsible for shaping image in dark and sharp light respectively.
- It works by converting the light signal into electric signals.

9- Optic Nerve:

It collects electric signals from retina and transfer them to brain very three dimensional image formation takes place.

→ In this way, human eye uses its components to facilitate vision process.