

Class 8 light and vision (Reflection and eye) CBSE Solved Test Paper - 04

1. Q. What do you mean by lateral inversion?

Ans: The exchange of left and right side of object in the image formed by plane mirror is termed as lateral inversion. For example, the word AMBULANCE is painted left-right inverted on the ambulance so that when the driver of a vehicle in front looks into his rear-view mirror, he can make out the word AMBULANCE quickly and give way.

2. Q. A shiny metal form an image, but image is not as clear as that is formed by plane mirror. Why?

Ans: A clear image is formed by plane mirror due to regular reflection. The image formed by the shiny utensil is not clear as that formed by a mirror because utensil surface is not so smooth and the refracted from its surface get diffuse.

3. Q. What is mirror?

Ans: A smooth shining surface, which reflect back ray of light in same or in different directions is called a mirror. It is of two type pane or spherical mirror.

4. Q. A book is placed between two mirrors that are at right angles to each other. One of the images formed does not show lateral inversion. Where is this image formed and why is it not laterally inverted?

Ans: One of the images formed at the edge where mirror meet. This image is formed by rays that get reflected twice. As a result this image is not laterally inverted.

5. Q. Why do we prefer a convex mirror as a rear-view mirror in vehicles?

Ans. It is because, it covers a wide rear field and forms small, erect and virtual image, close to the eye of the driver of the vehicle.

6. Q. A coin, kept in a cup of water appears 'raised up'. Why?

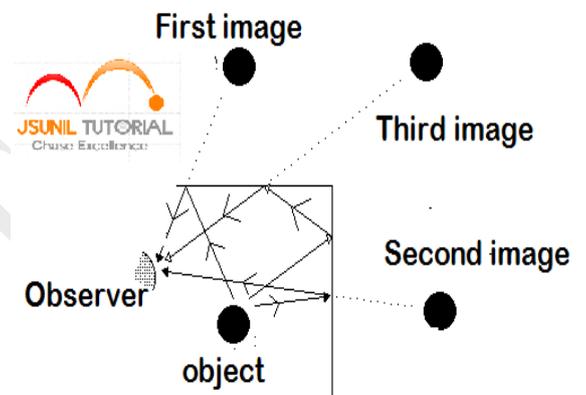
Ans: The rays of light reflect back from object when leave the water get refract and reach to our eyes. Therefore due to refraction a virtual image of the object is formed nearer to the water surface. This is called apparent position. Thus the coin appears raised up when kept it in to water.

7. Q. Why does light split into several colours as it passes through the prism?

Ans: White light is a mixture of seven colours having different velocities. When white light passes through prism refract at refract angles and splits up into seven colours. This phenomenon of splitting white light into seven colours is called dispersion of white light. The band of seven colour formed on screen due to dispersion of light is called spectrum

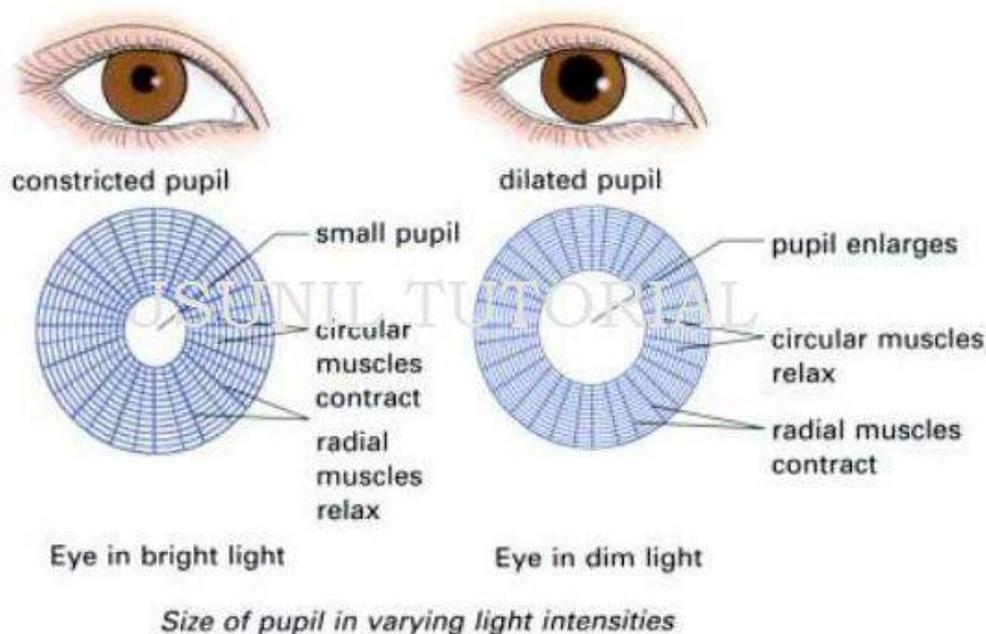
8. Q. Why do we have two eyes for vision and not just one?

Ans: There are several advantages of our having two eyes instead of one. It gives a wider field of view. A human being has a horizontal field of view of about 150° with one eye and of about 180° with two eyes. The ability to detect faint objects is, of course, enhanced with two detectors instead of one.



9. Q. How is light entering the eyes controlled?

Ans: Light entering the eyes controlled by whole in the iris called pupil to ensure best possible brightness of images formed by eye lens.. In dim light iris expand the size of pupil to allow more light enters into eyes. In bright light iris reduce the size of pupil to keep out excess light enters into eyes.



10. Q. What is accommodation? How it is achieved by eye lens and ciliary muscles.

Ans: The ability of the eye lens to adjust its focal length when see far and nearby object is called accommodation. The eye lens is a crystalline convex lens made up of transparent and flexible tissues behind the pupil and held by the muscles called ciliary muscles. Eye lens focus inverted the images of objects on the retina of the eye.

When we are looking at nearby objects, the ciliary muscles contract to increase thickness of eye lens. This increases the curvature of the eye lens therefore the focal length of the eye lens decreases. This enables us to see nearby objects clearly.

When we see far objects, the ciliary muscles relax to decrease thickness of eye lens (lens becomes thin). Thus, its focal length increases. This enables us to see distant objects clearly.

Q.11.(i) In how many hours after the death of donor, the eyes should be removed? (ii) What kind of persons cannot donate their eyes?

Ans. (i) The eyes should be removed within 4-6 hours after death. (ii) People infected with AIDS, Hepatitis B and C, rabies, tetanus, etc cannot donate their eye.

Q.12. what is stropsis as applied to human eyes? Explain.

Ans. The phenomenon due to which we can judge the depth of distance of an object due to the positioning of our eyes few centimetres from each other is called stropsis. As our eyes are separated by few centimeter, each eye receives an image which is slightly different. When these images are combined by the brain into one image, the sensation of depth is produced.

13.Q. Describe the structure and function of eyes?

Ans: Eye is the organ of vision and acts as a vital optical instrument. It is spherical in shape of about 2.3 cm diameter

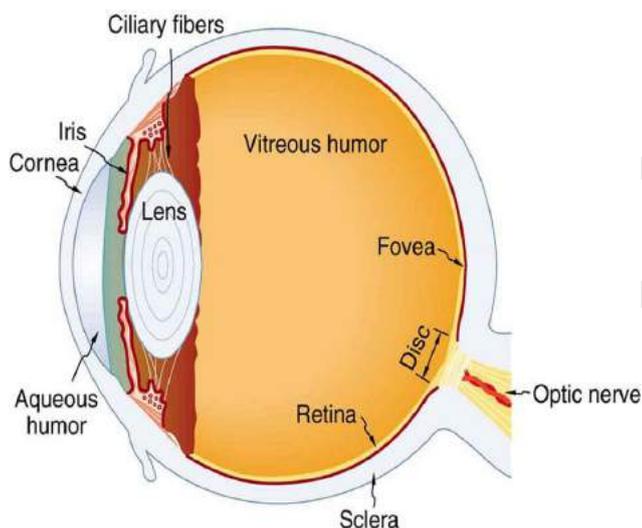
(i) Sclera: It is externally covered by a white opaque layer called Sclerotic (sclera) to protect and hold the eye.

(ii) Choroid: The choroid is the vascular layer of the eye lying between the retina and the sclera. The choroid supplies blood to nourish the outer layers of the retina.

(iii) Cornea: It is the transparent part bulging out at the front of the eye and allows light to enter. The cornea is also known as the window or aperture of the eye.

(iv) Iris and pupil: The coloured ring-like structure behind the cornea is called **iris**. It has a small opening called pupil through which light reaches the eye lens.

(v) Eye lens and ciliary muscles: The eye lens is a crystalline convex lens made up of transparent and flexible tissues. It is held by ciliary muscles behind the pupil. Ciliary muscles change the focal length of the eye lens to focus inverted images of objects on the retina of the eye.



(vi) Retina: The retina acts as a screen to obtain the image of the object. It contains a number of sensitive cells called rods and cones.

(vii) Photoreceptors:

Rods detect light and cones detect colour: They first convert light into chemical energy, and then into electrical energy to send it through the optic nerve to the brain.

(viii) Fluid:

The aqueous humor is a watery fluid which fills the space between the cornea and lens. The space between the eye lens and retina is filled with another jelly-like fluid called vitreous humor.

14. State the functions of aqueous humor.

Ans. Functions of aqueous humor: (i) It prevents the anterior part of the eye ball from collapsing due to the change in atmospheric pressure. (ii) It keeps the cornea moist and prevents it from atmospheric change.

15. What is a blind spot?

Ans: A blind spot is a point on the retina where optic nerves leave the retina. An image formed at this point is not sent to the brain due to the absence of rods and cones.

16. Why do chickens wake up and roosters early in the morning?

Ans: Chickens have a large number of rod cells in their eyes which help detect the slightest intensity of light and hence chickens or roosters wake up so early.