

VIDYA BHAVAN, BALIKA VIDYAPEETH
SHAKTI UTTHAN ASHRAM, LAKHISARAI, PIN:-811311

SUBJECT:- PHYSICS

CLASS:- XTH

DATE:11/10/XX

SUBJECT TEACHER:- MR. NEEL NIRANJAN

CHAPTER 2. (LIGHT- REFLECTION) (BASED ON NCERT PATTERN)

(REVISION)

Question 1. What is the difference between a real image and a virtual image ? Give one example of each type of image.

Solution : Real image can be obtained on a screen because light rays actually pass through a real image but virtual image cannot be formed on screen because light rays do not actually pass through a virtual image. **Example:-**

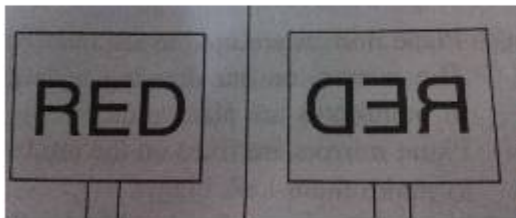
The image formed on a cinema screen is an example of real image.
The image formed by a plane mirror is a virtual image.

Question 2. What is lateral inversion ? Explain by giving a suitable example.

Solution : When an object is placed in front of a plane mirror, then the right side of the object appears to become the left side of the image; and the left side of the object appears to become right side of the image. This change of the sides of an object and its mirror image is called lateral inversion.

Ex. When we hold a placard having the word RED written on it, as given in fig A, in the front of a plane mirror, the image of the word RED will be as given in fig B.

When an object is placed in front of a plane mirror, then the right side of the object appears to become the left side of the image. This change of the sides of an object and its mirror image is called lateral inversion. Ex. When we hold a placard having the word RED written on it, as given in fig A, in the front of a plane mirror, the image of the word RED will be as given in fig B.



A

B

Question 3. What are the important differences between looking at a photograph of your face and looking at yourself in a plane mirror ?

Solution : A image of our face in a plane mirror is laterally inverted, so left is right and right is left. However, in a photograph of our face this is not the case.

Question 4.(a) A wall reflects light and a mirror also reflects light. What difference is there in the way they reflect light ?

(b) Which type of reflection of light leads to the formation of images ?

Solution : (a) A wall has a rough surface, so the reflection by a wall is a diffuse reflection. A parallel beam of light incident on it is reflected in different directions. A mirror surface is smooth, so the reflection by a mirror is a regular reflection. A parallel beam of light incident on it, gets scattered by making reflected rays in different directions.

(b) Regular reflection

Question 5. What can you see in a completely dark room ? If you switch on an electric bulb in this dark room as a light source, explain how you could now see :

(a) the electric bulb.

(b) a piece of white paper.

Solution : When we see in a completely dark room, we are not able to see anything because there is no light in the dark room.

(a) We can see bulb due to the light emitted by the bulb.

(b) We can see a piece of white paper because it reflects the light from the bulb falling on it.

Question 6. (a) A boy with a mouth 5 cm wide stands 2 m away from a plane mirror. Where is his image and how wide is the image of his mouth ?

(b) The boy walks towards the mirror at a speed of 1 m/s. At what speed does his image approach him ?

Solution : (a) The image will form 2 m behind the mirror and the width of the image of boy's mouth will be 5 cm.

(b) When the boy walks towards the mirror at a speed of 1 m/s, his image will also appear to move towards the mirror at the same speed of 1 m/s. So, the speed at which his image approach him will be $2 \text{ m/s} + 2 \text{ m/s} = 4 \text{ m/s}$.