

Exercises

Ex. A) Fill in the blanks :. (Ans.)

(1) Regular and irregular

(2) Real

(3) Virtual

(4) Virtual

(5) inner

(6) Convex

(7) Convex lens

(8) thicker

(9) Concave lens

(10) Ratings

Ex.B) Pick the correct option : (Ans.)

1. Which image can be obtained on a screen?

Ans. real

2. Which of the following is a good reflector of light?

Ans. stainless steel plates

3. In which of the following concave mirrors is used?

Ans. torches

4. Which surface of the convex mirror is reflective?

Ans. outer

Ex.C) Answer the following questions in short.

1). What are luminous and non luminous objects?

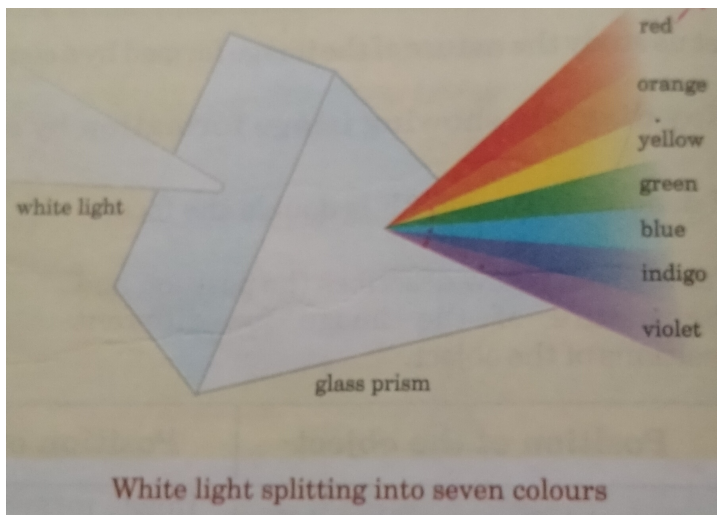
Ans. Luminous objects are the objects that emit their own light. For example: sun, stars and lighted candle.

Non luminous objects are the objects that do not emit their own light. For example, moon Earth and book.

2). What is a spectrum. Explain?

Ans. The set of colours into which a beam of light can be separated for a range of waves such as light waves or radio waves.

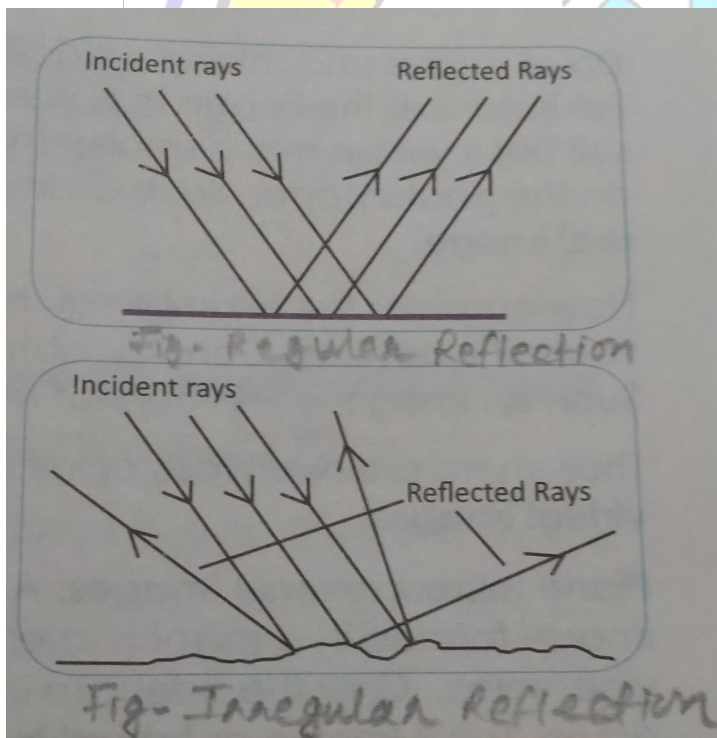
The colours of the spectrum are- red, orange, yellow, green, blue, indigo and violet (VIBGYOR) can be seen in a rainbow.



3). Explain regular and irregular reflection of light with diagrams.

Ans. Regular reflection: Reflection that takes place because of a regular and smooth surface is known as regular reflection. In this reflection, all the reflected rays are parallel to each other. They are reflected back evenly.

Irregular reflection: reflection that takes place because of a rough and dull surface is known as irregular reflection. In this reflection scatters light in all directions and all the reflected rays are in random directions. These helps us to see things.



4). Differentiate between real images and virtual images.

Ans. Real image : (1) The images which are formed by the actual intersection of light and which can be obtained on a screen are called real images.

(2) for example pictures obtained on the screen of projector are real images.

(3) real images are formed on the same side of the mirror as the object.

Virtual image : (1) the image which is obtained when the rays appear to meet each other but actually do not intersect each other is called virtual image.

(2) For example of the image formed by the mirror.

(3) virtual images are formed behind the mirror.

5). List the characteristics formed by plane mirror.

Ans. Characteristics of the images formed by plane mirror are:

1. The image formed in a plane mirror is behind the mirror and it is virtual.
2. The image formed in a plane mirror is of same size of the object.
3. The image in a plane mirror is erect and it is the same side up as the object.
4. It is laterally inverted (sideways reversed) with respect to the object.

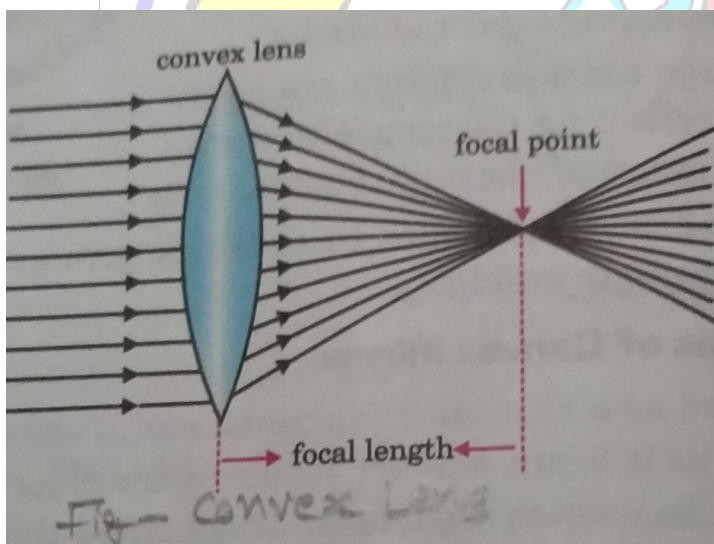
6). Explain concave and convex mirror.

Ans. Concave mirrors are spherical mirrors with their inner curved surfaces being the reflective surface. The real image formed by concave mirror can be captured on a screen and we can say that it can form a real image. For example, torches, shaving mirror, and headlights of motor vehicles.

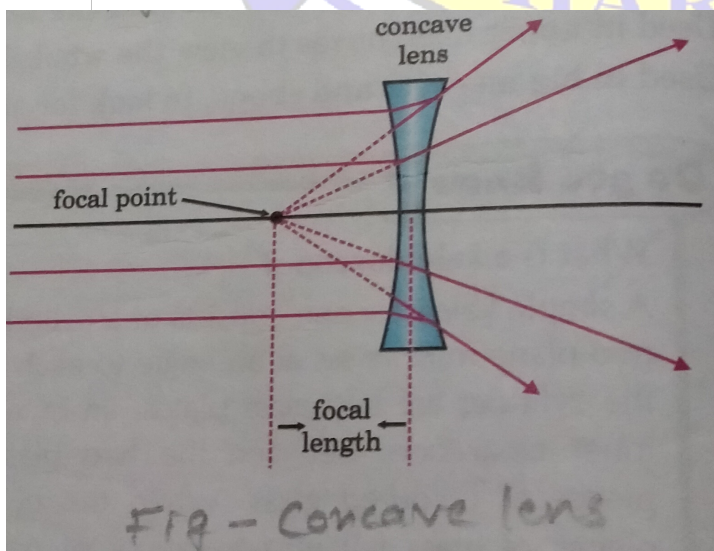
Convex mirrors are spherical mirrors with their outer curved surfaces being the reflective surface. Convex mirrors form only virtual images hence it is not possible to project the image formed by a convex mirror on a screen. For example, vehicles such as car, bus, and truck etc.

7). Why is convex lens called a converging lens and concave lens called diverging lens?

Ans. Because a convex lens converges light. Light falling on a convex lens converges. This means the lens bends light inwards. That is why convex lens is called a converging lens.



Because a concave lens is thinner at the centre than at the edges. This lens diverges light. It means it bends light outwards. That is why a concave lens is called diverging lens.

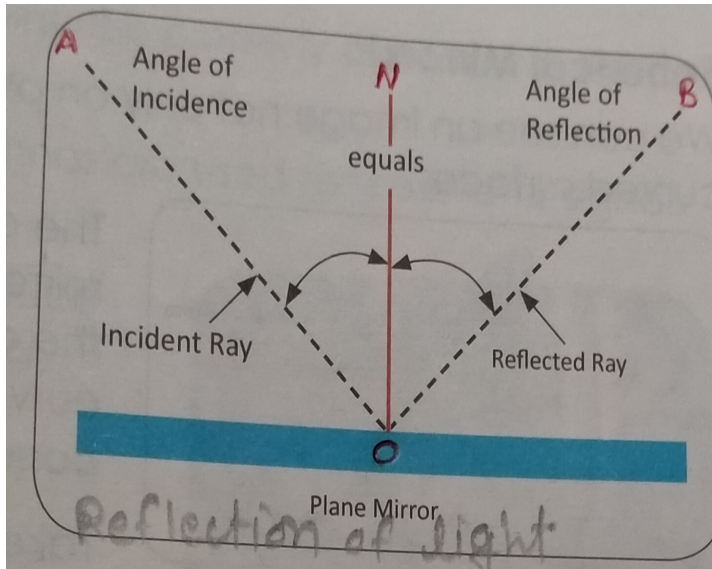


8). Draw and define: reflection of light, incident ray and reflected ray.

. Reflection of light : bouncing back of light in the same medium after falling on a reflecting surface.

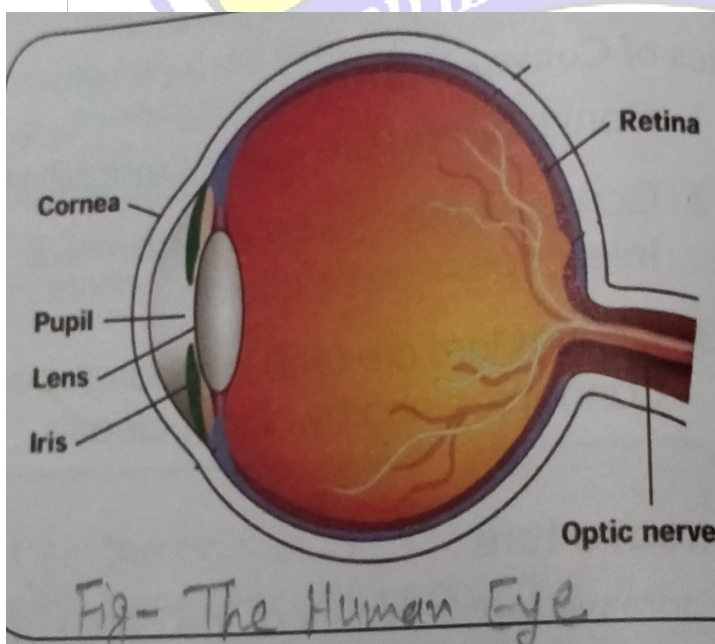
. Incident ray : The incoming ray of light, here AO, falling on the reflecting surface is called incident ray.

. Reflected ray : The bouncing ray of light, here OB, reflected back on the same medium is called the reflected ray.



9). Explain human eye with the help of diagram.

Ans. The human eye has inbuilt convex lens. The coloured part of the eye is called iris. The pupil of the eye is like a window which allows light to enter the eye. The Ray of light after being reflected from an object, fall on the eye lens after entering through the pupil. the lens focuses and forms a real and inverted image which falls on the part of the eye called retina. Retina is behind the lens and IT act as a screen. The retina is connected to the optic nerves behind the eye. The optic nerves carries the information of the image to the brain.



10). Write down the uses of convex and concave lens.

Ans. Uses of convex lens :

1. Convex lenses are used as magnifying glasses.
2. These are used in cameras, microscopes, telescopes and binoculars.
3. Convex lens are used in making spectacles for people who cannot see nearby objects clearly.

Uses of concave lens :

1. Concave lens are used in making certain kinds of telescopes.
2. These are used in the 'peep holes' in the doors of hotel rooms (to see a clear image of the person is standing outside).
3. Concave lens are used in making spectacles for people who cannot see distance object clearly.

HOTS :

1). Sunlight consists of light of only one colour do you agree give reasons.

Ans. No, of course sunlight appears to be of a single colour like a streak of white light but this white light is actually a mixture of seven colours such as violet, indigo, blue, green, yellow, orange and red, which can be observed if the light is made to pass through a prism.

