

Chapter - 8

[Light]



Ⓐ Answer the following in not more than 20 words.

① What do you understand by the rectilinear propagation of light?

Ans → Rectilinear propagation of light is the property of light due to which it travels in a straight line.

② What is the relation between incident ray, the reflected ray and the surface of a plane mirror?

Ans → The incident ray and reflected ray make equal angles with the surface of the plane mirror.

③ Write three properties of the image formed by a plane mirror?

Ans → The image formed by a plane mirror is virtual, and erect and its size is the same as that of the object.

④ An object is placed beyond the focus of a concave mirror. What is the nature of image - real or virtual, erect or inverted?

Ans → The image will be real and inverted.

⑥ You have a concave mirror. Where will you place an object to see an erect and magnified image?

Ans. → ~~When an object is placed beyond~~
We will place an object closer to a concave mirror than the focus point of the mirror to see an erect and magnified image.

⑦ You have a convex lens. Where will you place an object to see an erect and magnified image?

Ans. → We will place an object between a convex lens and its focus to obtain an erect and magnified image.

⑧ Mention two uses of concave mirror.

Ans. → The following are two uses of concave mirror—

- ① It is used to converge sunlight
- ② It is used as a compact mirror and as a shaving mirror.

⑨ State two uses of convex lens.

Ans. → Two uses of convex lens are—

- ① It is used ~~as~~ in a magnifying glass.
- ② It is used in spectacles.

⑩ What is white light?

Ans. → White light is a mixture of seven colours and looks colourless.

(B) Answer the following in not more than 40 words.

① Why is the image formed by a pinhole inverted?

Ans → The image formed by a pinhole is inverted. because, when the rays from an object cross the pinhole, the rays from the top half of the objects are below the rays from the bottom half. So, when they fall on a screen, an inverted image is formed.

② What happens when parallel rays of light fall on a curved reflecting surface?

Ans → A When parallel rays fall on a concave reflecting surface, then, after ~~reflecting~~ reflection, the rays converge to a point.

When parallel rays falls on convex reflecting surface, the rays seem to diverge from a point.

③

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③ Convex mirrors are used as rear-view mirrors. Why?

ANSWER:

Convex mirrors are used as rear-view mirrors because they form images that are much smaller than the objects. Therefore, we can view a wider area on a convex mirror.

④ What do you understand by the spectrum of white light?

ANSWER:

White light when gets split into its component colours, it gets split into seven colours called the spectrum of white light. The colours that constitute white light are violet, indigo, blue, green, yellow, orange and red (VIBGYOR).

⑤ How is a rainbow formed?

ANSWER:

When sunlight passes through raindrops at certain angles, white light bends very sharply and the seven colours of white light are separated. These colours are visible in the sky as a rainbow.

⑥ Why does a Newton's Disc appears white when it is rotated?

ANSWER:

When Newton's disc is rotated, it appears white, because when the disc spins, all the colours pass through a spot rapidly one after another. This rapid movement has the effect of putting all the colours in one place, making them appear white.

© Answer the following in not more than 100 words.

① What are real and virtual images? What are the differences between them?

A real image is an image that can be formed on a screen.

A virtual image is an image that cannot be formed on a screen.

Real image	Virtual image
Real images are formed when the rays actually meet after reflection or refraction.	When a virtual image is formed, the rays do not meet after reflection or refraction but are extended to form the image.
A real image is always inverted when it is formed by one mirror or lens.	A virtual image is always erect when it is formed by one mirror or lens.

② What do you understand by the focus of a lens?
How will you find the focus of a convex lens?

ANSWER:

The point at which parallel rays of light falling on a curved surface actually meet or seem to meet (when extended) after reflection from the surface is called the focus of the curved surface.

To find the focus of a convex lens, take a convex lens or a magnifying glass. Turn the lens towards the sun and slowly move it away from the ground. At a certain distance from the ground, we see a sharp image of the sun at a point. This point, at which parallel rays of the sun converge after passing through the lens, is called the focus of the lens.

③ What is refraction? Explain with an example.

ANSWER:

Refraction of light refers to the bending of light when it travels from one medium to another.

Example: If we look carefully at raindrops on leaves and flowers in a garden, we will be able to see inverted images of the garden in them. We will also see magnified images such as those of veins of leaves. All these images are formed because of refraction of light.