

SCIENCE

Chapter 15: Light



Swotters

- (a) Plane mirror
- (b) Concave mirror
- (c) Convex mirror
- (d) Convex lens

Question 2. Which of the following is used as a side view mirror?

- (a) Plane mirror
- (b) Concave mirror
- (c) Convex mirror
- (d) Convex lens

Question 3. The path of the light is

- (a) always a straight line
- (b) a curved line
- (c) a zig-zag line
- (d) depends on the medium

Question 4. White light is composed of

- (a) three colours
- (b) seven colours
- (c) five colours
- (d) eight colours

Question 5. A virtual image

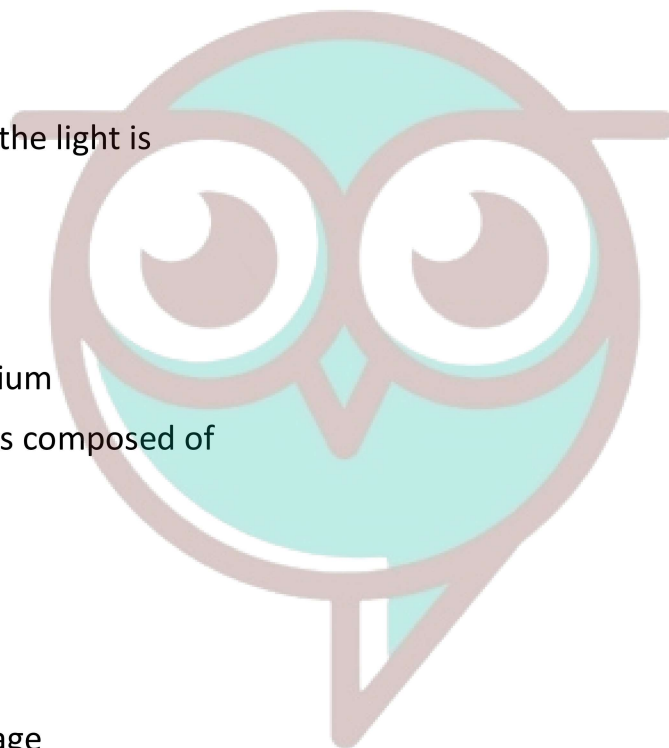
- (a) can be formed on the screen
- (b) cannot be formed on the screen
- (c) is formed only by the plane mirror
- (d) is formed only by the convex mirror

Question 6. The image formed by spherical mirror is virtual. The mirror will be

- (a) concave
- (b) convex
- (c) either concave or convex
- (d) none of these

Question 7. The coloured band of light obtained by dispersion of light is called

- (a) image
- (b) spectrum



- (c) convergence
- (d) scattering

Question 8. We can get an inverted image from

- (a) both concave lens and convex lens.
- (b) both concave mirror and convex mirror.
- (c) both concave mirror and convex lens.
- (d) both convex mirror and concave lens.

Question 9. A convex lens is

- (a) thick at centre
- (b) thin at the centre
- (c) thick at edges
- (d) hollow at the centre

Question 10. The image that can not be obtained on a screen is called

- (a) real image
- (b) virtual image
- (c) diminished image
- (d) none of these

➤ **Fill In the Blanks:**

1. An image can be obtained on a screen is called a image
2. An image formed by lens cannot be obtained on a screen.
3. light deviates the least, while light deviates the more.
4. The outer surface of a flat steel plate acts as a mirror.
5. The inner surface of the reflector of a torch acts as a mirror.
6. A is a piece of any transparent material bound by two curved surfaces or by one curved and one plane surface.

➤ **True or False:**

1. The image formed by a convex mirror is erect.
2. The image formed by a concave mirror is formed on the screen.
3. The image formed by a plane mirror is real.
4. The change of sides of an object and its mirror image is called lateral inversion.
5. The image formed by plane mirror is erect.
6. When the reflecting surface of the spherical mirror is curved inwards, it is called concave

mirror.

➤ Very Short Question:

1. Give an example to show that the path of light is always straight and never curved.
2. What is the image of an object?
3. Why the word 'AMBULANCE' is painted left-right inversed on the vehicle?
4. State the principle used in creating a mirror image.
5. Name the mirror having a curved reflecting surface.
6. Name the two types of spherical mirror.
7. State uses of the concave mirror.
8. State uses of the convex mirror.
9. What is a virtual image?
10. What is a real image?

➤ Short Questions:

1. What are the laws of reflection?
2. Differentiate between real & virtual image?
3. Why concave mirror is called a converging mirror and a convex mirror is called a diverging mirror?
4. Explain the nature of image formed in a concave mirror.
5. What are the uses of concave mirror?
6. What is a lens?
7. How is the rainbow formed?
8. Apart from rainbow, where else we can see seven colours of sunlight?

➤ Long Questions:

1. What is rainbow?
2. Images in a mirror are located at the same distance behind the mirror as the object in front of it. Explain the importance of this property of mirror.
3. What do you mean by left right inversed?

✓ Answer Key-

➤ Multiple Choice Answers:

1. (a) Plane mirror
2. (c) Convex mirror

3. (a) always a straight line
4. (b) seven colours
5. (b) cannot be formed on the screen
6. (c) either concave or convex
7. (b) spectrum
8. (c) both concave mirror and convex lens.
9. (a) thick at centre
10. (b) virtual image

➤ **Fill In the Blanks:**

1. real
2. concave
3. Red, violet
4. plane
5. concave
6. lens

➤ **True or False:**

1. False
2. True
3. False
4. True
5. True
6. True

➤ **Very Short Answers:**

1. Answer: Light emitted by torchlight and light emitted from the headlights of a vehicle
2. Answer: Due to the reflection of light, the impression of an object formed in a mirror is called the image of the object.
3. Answer: So that when the driver of a vehicle in front looks into his rear – view mirror, can read ambulance written on it quickly and give way to it.
4. Answer: Principle of reflection
5. Answer: Spherical mirror
6. Answer: Concave mirror and convex mirror.
7. Answer: Concave mirrors are used by dentists to obtain a magnified image of the teeth.



Swotters

They are also used in solar heaters or solar concentrators, and as reflectors in flashlights, and headlights of cars and scooters.

8. Answer: Convex mirror are used as reflectors at sharp turns and tricky or 'blind' corners and in parking lots, and as rear-view mirrors in cars and on motorcycles.
9. Answer: The image formed by a plane mirror cannot be captured on a screen, and is called a virtual image.
10. Answer: Images that can be captured on a screen are known as real images.

➤ Short Answers:

1. Answer: The two laws of reflection are:
 - Angle of incidence is equal to angle of reflection.
 - Incident ray & the normal lie on the same plane.
2. Answer: Real image can be obtained on a screen Image e.g.- Plane Mirror. But virtual Image cannot be obtained on a screen e.g. - Pinhole Camera, Photograph Camera.
3. Answer: Concave mirror is called a converging mirror because parallel rays of light fall on the mirror they converge at a point called focus. Convex mirror is called a diverging mirror because parallel rays of light fall on it they diverge after reflection.
4. Answer: The nature of image formed in a concave mirror depends on the portion of the object in front of the mirror. If the object is very close to the mirror the image is virtual, erect & magnified. As the distance increases image becomes real, inverted & its size keeps changing.
5. Answer: Following are the uses of concave mirror:
 - Used by the ENT Specialists, dentists.
 - Used as Shaving mirror.
 - Used by makeup artists.
 - Used in torches & Car headlights to get a parallel beam of light.
6. Answer: A piece of transparent material bound by curved surfaces. There are two types of lens concave lens and convex lens. Convex lens is thick at the centre and thinner at edges, it is called converging lens concave lens is thin at the center and thicker at edge, it is called diverging lens.
7. Answer: A rainbow is formed by the refraction and reflection of the sun's rays through raindrops. When it is raining in one part of the sky and sunny in another, a rainbow appears. The centre of the rainbows arc is always directed away from the sun.
8. Answer: You can see seven colours of sunlight when it falls over soap bubbles, oil films, shiny surfaces of CD etc.

➤ Long Answers:

1. Answer: A rainbow is an optical phenomenon that is caused by reflection of light in water droplets in the Earth's atmosphere, resulting in a spectrum of light appearing in the sky. It takes the form of a multi-coloured arc. Rainbows caused by sunlight always appear in the section of sky directly opposite the sun. Rainbows can be observed whenever there are water drops in the air and sunlight shining from behind at a low altitude angle, the colour of rainbow are Red, Orange, Yellow, Green, Blue, Indigo, Violet.
2. Answer: Images in a mirror are located at the same distance behind the mirror as the object in front of it is mainly used in interior decoration and in architecture to make rooms appear brighter and bigger. Moreover, placing a mirror near lights, chandeliers and table lamps reflects the light over a larger area, and makes the room appear brighter. Images that cannot be captured on a screen are called virtual images.
3. Answer: Images are inverted, i.e. the right part of an object appears on the left in its images, and the left part of the object appears to the right. For example, the word 'AMBULANCE' is painted left-right inverted on the vehicle 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.

