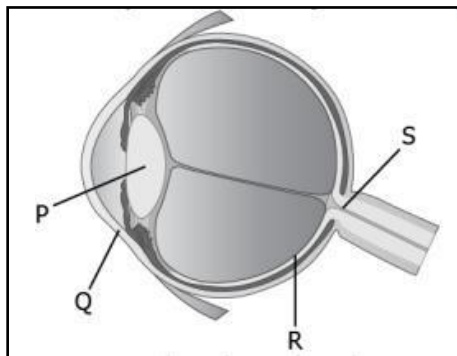


LIGHT

I. OBJECTIVE-TYPE QUESTIONS:

1. A student switched on a torchlight and pointed it towards a rough reflecting surface. What is likely to happen to the rays of light emitted from the torch?
 - a) Rays of light will get absorbed
 - b) Scattering of the rays of light**
 - c) Reflect back along the path of incidence
 - d) Reflect in one particular direction depending on the angle of incidence
2. A student observes that using a kaleidoscope he was able to see several patterns in the tube. What causes the kaleidoscope to form these patterns?
 - a) Repeated reflection of light**
 - b) Thickness of the reflecting surface
 - c) Roughness of the reflecting surface
 - d) Enormous amount of light falling on a reflecting surface
3. The image represents the human eye. It marks a few parts of the eye as P, Q, R, and S.
Which marked part of the eye senses the colour of an object?



a) P

b) Q

c) R

d) S

4. A student studies that at the point where the optic nerve and the retina meet, there are no sensory cells. As a result, no vision is possible. Which of these marks the junction point of the optic nerve and the retina?

a) Iris

b) Cornea

c) **Blind spot**

d) Optic nerve

5. One evening while Sheetal and her friends were playing, some dust particles went into Sheetal's eye. Which step should be adopted to remove the dust from her eyes?

a) Rub eyes with fingers

b) Blow hot air into the eyes

c) **Wash eyes with clean water**

d) Wash eyes with any kind of detergents

6. A student studies that the braille system is a popular resource that can be used by visually challenged persons to communicate. It is a combination of dots to represent a character. Which sense is likely to help a person recognize a braille character?

a) hearing

b) smell

c) taste

d) **touch**

For the questions that follow, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below:

i) **Both A and R are true and R is the correct explanation of the assertion.**

ii) **Both A and R are true but R is not the correct explanation of the assertion.**

iii) **A is true but R is false.**

iv) **A is false but R is true.**

7. **Assertion (A):** We can see non-luminous objects around us.

Reason (R): Light emitted by the non-luminous object falls on the eye.

8. **Assertion (A):** Multiple images are formed when two plane mirrors are placed at an angle to each other.

Reason (R): The image formed by one mirror acts as the object for the second mirror.

9. **Assertion (A):** The image formed by a plane mirror is real at the surface of the mirror and enlarged.

Reason (R): The splitting of light into its constituent colours is known as dispersion.

10. **Assertion (A):** Visually challenged persons can read and write using a braille system.

Reason (R): The Owl has a large cornea and a large pupil to allow more light in its eye.

II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

1. What is meant by lateral inversion
2. What happens to light when it gets dispersed? Give an example.
3. How do eyelids protect our eyes?
4. Name the two kinds of cells in the human eye and state their functions.
5. What kind of lens is there in our eyes? Where does it form the image of an object?
6. What is a blind spot?
7. How many images of a candle will be formed if it is placed between two plane mirrors separated by an angle of 45° ?
8. Give four characteristics of an image formed by a plane mirror.
9. Distinguish between real and virtual images.
10. A Periscope is a device made by using two plane mirrors placed at particular angles.
 - a) On which principle does it work?
11. What is it used for? Eyes of the nocturnal birds have a large cornea and a large pupil.
How does this structure help them?
12. How do visually impaired people read?

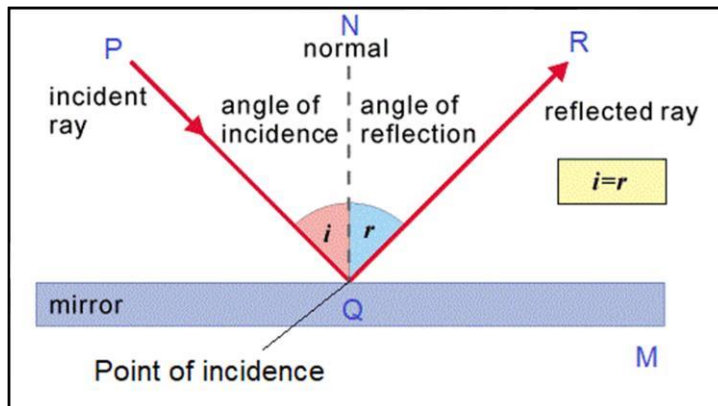
III. SHORT ANSWER TYPE QUESTIONS (3M):

1. What is a cataract? How is it treated medically?
2. If an object is placed at a distance of 7.5 cm from a plane mirror, how far would it be from its image
3. What is a Kaleidoscope? On what principle does it work and also state its applications.
4. Explain the process which enables us to perceive motion in a cartoon film.
5. Draw and also state two points of difference between regular and diffused reflection.

IV. LONG ANSWER TYPE QUESTIONS (5M):

1. State the functions of the following parts of the human eye. a) Cornea b) Iris c) Pupil
d) Retina
- 2.
3. Draw a neat labelled ray diagram to show the reflection of light from a plane mirror.

V. Explain all the terms related to the reflection of light. CASE STUDY- BASED QUESTIONS:



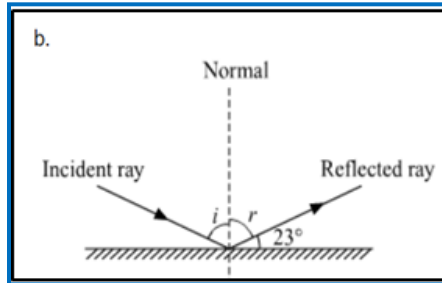
1. The light ray that falls on a mirror is called the incident light ray. The ray that comes back from the surface after reflection is called the reflected light ray. The point where the incident ray strikes the reflecting surface is called the point of incidence. A line drawn perpendicular to the mirror at the point of incidence is normal. If the rays, after reflection from a surface, are parallel, then the reflection is termed regular reflection. The reflection from a plane mirror is an example of regular reflection. When parallel rays, after reflection from a surface, are not parallel, then it is called diffused reflection or irregular reflection. The reflection from an uneven surface is a diffused reflection.

Note: Rules are applicable for plane surfaces as well as curved surfaces.

i) What is reflection? [

ii) State the laws of reflection of light

iii) If the angle between the mirror and the reflected ray is 23° , what is the angle of incidence of the incidence ray?



$$\angle r + 23^\circ = 90^\circ$$

$$\Rightarrow \angle r = 67^\circ$$

Using law of reflection, we have

$$\angle i = \angle r = 67^\circ$$

2. Amar and Dhaval had come to visit an ophthalmologist. On enquiring, it was found that Amar can read his book when he places it very near to his eyes, but his friend Dhaval can only see objects that are placed at a distance, not the ones placed nearby. When observed by a doctor it was found that Amar was suffering from short-sightedness which is a defect of vision wherein far-off objects appear blurred and objects near are seen clearly and

Dhaval was suffering from long-sightedness which is a defect of vision wherein there is difficulty in viewing objects that are near but one can view far objects easily.

Some old people suffer from cataracts which is the clouding of the lens that prevents the formation of a clear, sharp image. Because of this clouding blurred images are formed. Correction of cataracts can happen through surgery by placing an artificial lens in place of the opaque lens. They have very limited vision to see things. You must take proper care of your eyes. If there is any problem you should go to an eye specialist.

i) Identify the defect Amar is suffering from -

a) **Short-sightedness**

b) Cataract

c) Conjunctivitis

d) Long-sightedness

ii) Identify the defect Dhaval is suffering from -

a) Cataract

b) Short-sightedness

c) Conjunctivitis

d) **Long-sightedness**

iii) Why one should include vitamin A-rich eatables in their diet?

iv) What are the main sources of vitamin A?