Class 8 Science
Chapter 15 Light

Short Question and Answers

B. Circle the odd one out.

Q.1 Cornea, long sightedness, short-sightedness, cataract Moon, Stars, Earth, Tree.

Ans: Odd one out: Trees
Because Moon, Stars, and Earth are celestial objects, but Trees are living plants on Earth.)

Q.2 Spectrum, Dispersion, Colours, Incident ray

Ans: Odd one out: Incident ray
(Because spectrum, dispersion, and colours are related to light splitting, while incident ray is the incoming ray of light.)

Q.3 Leaf, Rough wall, Mirror, Skin

Ans: Odd one out: Mirror
(Because leaf, rough wall, and skin are natural surfaces, but mirror is a man-made reflective surface.)

Q.4 Cornea, Long sightedness, Short-sightedness, Cataract

Ans: Odd one out: Cornea
(Because cornea is a part of the eye, others are eye problems.)

II. Very short answer type questions

A. Give one word/phrase for the following.

Q.1 Bodies that give out light of their own

Ans: Luminous bodies

Q.2 The human eye retains an image produced for a short period of time.

Ans: Persistence of vision

Q.3 An eye defect caused by cloudy or opaque eye-lens.

Ans: Cataract

Q.4 A system which involves a pattern of raised dots used by the visually impaired to read.

Ans: Braille system

B. Define the following.

Q.1 Diffused reflection

Ans: When light falls on a rough surface, it reflects in many different directions. This is called diffused reflection. It helps us see objects clearly from any angle.

Q.2 Multiple reflection

Ans: When light bounces more than once between two or more surfaces, it is called multiple reflection. For example, light reflecting back and forth between two mirrors.

Q.3 Lateral inversion

Ans: When an image in a mirror appears reversed from left to right, it is called lateral inversion. This means the left side of the object looks like the right side in the mirror.

Q.4 Dispersion

Ans: When white light passes through a prism and splits into different colors, this splitting is called dispersion. It shows that white light is made up of many colors.

III. Short answer type questions

Q.1 Why can we not see an image in an old and worn-out stainless-steel plate?

Ans: We cannot see a clear image in an old and worn-out stainless-steel plate because its surface becomes uneven and scratched. This rough surface causes irregular reflection of light, which prevents the formation of a distinct image.

Q.2 What is a spectrum?

Ans: A spectrum is the band of different colours that is produced when white light is passed through a prism and splits into its constituent colours. The visible spectrum includes red, orange, yellow, green, blue, indigo, and violet.

Q.3 On which part of the eye does the image (from the eye-lens) form?

Ans: The image formed by the eye-lens is focused on the retina, which is a light-sensitive layer at the back of the eye. The retina converts the image into electrical signals that are sent to the brain via the optic nerve.

Q.4 What kind of lens is used to correct myopia?

Ans: A concave lens (also called a diverging lens) is used to correct myopia or short-sightedness. It helps by diverging the light rays before they reach the eye, so the image is formed correctly on the retina.

Q.5 The deficiency of which vitamin can cause night blindness?

Ans: Deficiency of Vitamin A can cause night blindness. This condition makes it difficult to see in dim light or at night because Vitamin A is essential for the proper functioning of the retina.

Chapter 15 Light

Long answer type questions

IV. Long answer type questions

Q.1 Give a brief explanation of how we 'see' things around us.

Ans: We see things because light from a source (like the Sun or a bulb) falls on objects and reflects off them. The reflected light enters our eyes through the pupil and is focused by the lens on the retina at the back of the eye. The retina converts the light into electrical signals, which travel to the brain through the optic nerve. The brain then processes these signals and forms an image, allowing us to see the object.

Q.2 State the laws of reflection.

Ans: The two main laws of reflection are:

a) **First law:** The incident ray, the reflected ray, and the normal (a line perpendicular to the surface at the point of incidence) all lie in the same plane.

b) **Second law:** The angle of incidence (the angle between the incident ray and the normal) is equal to the angle of reflection (the angle between the reflected ray and the normal).

Q.3 What are the characteristics of an image formed by a plane mirror?

Ans: The image formed by a plane mirror has the following characteristics:

a) It is virtual (cannot be projected on a screen).

b) It is of the same size as the object.

c) It is laterally inverted (left and right sides are reversed).

d) The image is formed at the same distance behind the mirror as the object is in front of it.

Q.4 With the help of simple diagrams, show how light is reflected from a rough surface and a smooth surface.

Ans: Light behaves differently when it reflects from smooth and rough surfaces:

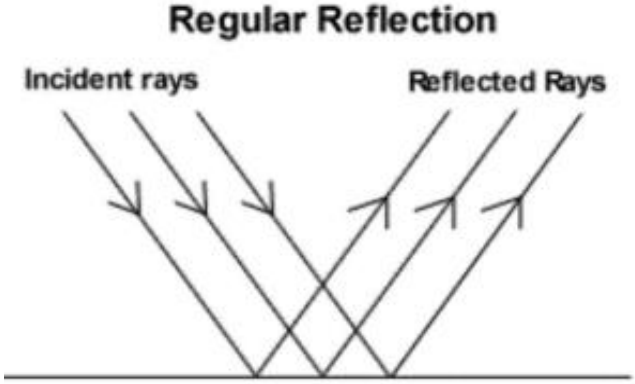
a) A smooth surface (like a mirror or polished metal) reflects all the incident light rays in a single direction. This type of reflection is called regular reflection. It produces a clear and sharp image.

b) A rough surface (like paper, cloth, or wall) reflects the incident light rays in different directions. This is called diffused or irregular reflection. It does not form a clear image.

Key Points:

a) Regular reflection results in image formation.

b) Irregular reflection causes scattered light and no image is formed.

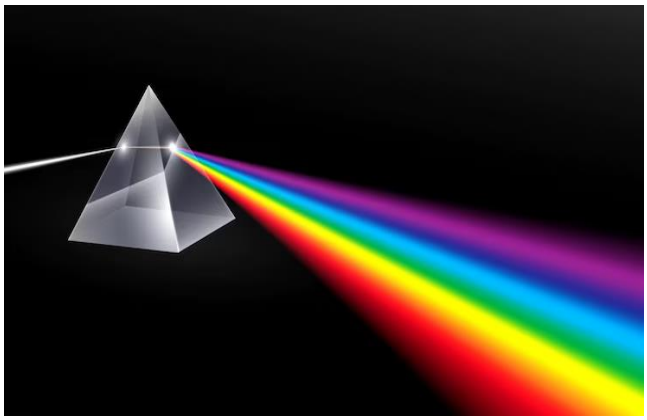


Q.5 What is dispersion? Explain with the help of a simple diagram of a prism.

Ans: Dispersion is the phenomenon of splitting of white light into its seven constituent colours (Violet, Indigo, Blue, Green, Yellow, Orange, Red — VIBGYOR) when it passes through a transparent medium like a glass prism.

This happens because different colours of light bend by different amounts when they pass through the prism. **Violet** bends the most, and **red** bends the least. As a result, the white light separates into a spectrum of colours.

Diagram description:



Q.6 Write a short note on the following:

a. Defects of the eye

Ans: Some common defects of the eye are:

a) Myopia (Short-sightedness): Difficulty seeing distant objects clearly.

b) Hypermetropia (Long-sightedness): Difficulty seeing nearby objects clearly.

c) Cataract: Clouding of the eye lens, causing blurry vision.

d) Astigmatism: Unequal curvature of the cornea causing blurred vision.

These defects can be corrected by using glasses, contact lenses, or surgery.

b. Alternative technology available to visually challenged people

Ans: Visually impaired people use special technologies such as:

a) Braille system: A tactile writing system using raised dots that helps them read by touch.

b) Audio books and screen readers: These convert text into speech.

c) White cane: Helps in navigation and avoiding obstacles.

d) Assistive apps and devices: Like magnifiers or smart glasses that enhance vision.

c. Nutrition and eye health

Ans: Good nutrition is important to keep our eyes healthy. Foods rich in vitamins A, C, and E help protect eyesight. Vitamin A is especially important because it helps in the formation of a pigment called rhodopsin, which allows us to see in low light. Carrots, spinach, eggs, and citrus fruits are good for eye health. Drinking plenty of water and avoiding excessive screen time also help prevent eye strain and dryness.