

LIGHT

- (Q.) Name the form of energy which enables us to see the objects?** (1 Mark)
- (Ans) Light is the form of energy which enables us to see the objects or which gives us the sensation of sight.
- (Q.) What types of waves are light waves?** (1 Mark)
- (Ans) Light waves are electromagnetic waves.
- (Q.) Define a ray of light.** (1 Mark)
- (Ans) A ray of light is the straight line along which light travels.
- (Q.) Define a beam of light?** (1 Mark)
- (Ans) A bundle of light rays is called a beam of light.
- (Q.) Give an example of best reflector of light.** (1 Mark)
- (Ans) Silver metal is one of the best reflectors of light.
- (Q.) What type of image is formed in a plane mirror?** (1 Mark)
- (Ans) The image formed in plane mirror is virtual image.
- (Q.) What type of image is formed on a cinema screen?** (1 Mark)
- (Ans) The image formed on cinema screen is real image.
- (Q.) An object is placed at a distance of 10 cm in front of a plane mirror. How far would its image be formed?** (1 Mark)
- (Ans) In a plane mirror, distance of image of an object from the mirror is same as the distance of object from mirror. The image of an object will be formed at a distance of 10 cm from the mirror.
- (Q.) Give any three phenomena shown by light.** (1 Mark)
- (Ans) Light shows the phenomena of reflection, refraction and dispersion.
- (Q.) How can visually challenged persons read and write?** (1 Mark)
- (Ans) Visually challenged persons can read and write using Braille system.
- (Q.) How do we see objects?** (1 Mark)
- (Ans) When light from a light source falls on any object, it is scattered by it. The scattered light enters our eyes to form the image of the object and the object is thus seen.
- (Q.) If angle of incident is 30° then what will be the value of angle of reflection?** (1 Mark)
- (Ans) Angle of incident = angle of reflection
Angle of reflection = 30°
- (Q.) Name the instrument based on multiple reflection used to create new designs** (1 Mark)
- (Ans) Kaleidoscope is an instrument based on the multiple reflection of light, used to create new designs.

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(Q.) Write the names of important parts of eye. (1 Mark)

(Ans) Important parts of eye are: Lens, Iris, Cornea, Optic nerve, Ciliary muscle and retina.

(Q.) What is blind point? (1 Mark)

(Ans) At the junction of the optic nerve and the retina, there are no sensory cells. So, no vision is possible at this spot and is called blind spot.

(Q.) Why the word AMBULANCE is written as its mirror image in front of the hospital vans? (1 Mark)

(Ans) The word AMBULANCE is written as its mirror image in front of the hospital vans because any person driving the vehicles, which is ahead of the ambulance van, can see the laterally inverted alphabets correctly from his rear view mirror and make way for it to pass through and enable it to reach the hospital quickly.

(Q.) Name two types of sources of light. (2 Marks)

(Ans) Natural sources of light: Sun, star, moon etc.

Artificial sources of light: Bulb, tube light etc

(Q.) Define dispersion of light. (2 Marks)

(Ans) The splitting of white light into seven colours on passing through a transparent medium, like a glass prism is called dispersion of light.

(Q.) What is cataract? How this defect can be removed? (2 Marks)

(Ans) Cataract is an eye defect which usually occurs in old age. In this eye defect, eyesight becomes foggy because the eye lens become cloudy. There is a loss of vision. This defect can be treated when the opaque lens is removed and the new artificial lens is inserted.

(Q.) Why is it important to take care of our eyes? Mention some activities that may cause damage to our eyes. (3 Marks)

(Ans) Our eyes are the most important and wonderful gift nature has provided to us. Eyes serves us for whole life so proper care and protection of them is important.

(i) We should wash our eyes at least twice a day with clean cold water.

(ii) We should not use too bright or too dim light while reading.

(iii) We should not read in a moving bus or a car.

(iv) At the event of an injury or any other problem to the eyes we must consult a doctor. Self-treatment could be dangerous to our eyes.

(Q.) Write the functions of the following:

(a) Optic nerves.

(b) Retina.

(c) Cornea.

(3 Marks)

(Ans) Their functions are as follows:

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- (a) Optic nerves: Its function is to carry optical messages (visual messages) to brain.
- (b) Retina: Its function is to receive the optical image of the object and convert it to optical pulses. These pulses are then send to the brain through optic nerve.
- (c) Cornea: Its function is to acts as a window to world i.e., to allow the light to enter in the eyeball.

(Q.) What are the characteristics of the image formed by a plane mirror? How is the position of image related to the position of the object? (5 Marks)

(Ans) Characteristics of the image formed by a plane mirror:

- (i) It is virtual.
- (ii) It is always erect.
- (iii) It is of the size of object.
- (iv) The image is formed as far behind the mirror as the object is in front of it.
- (v) The image is laterally inverted.
- (vi) Image is situated on the perpendicular drawn from the object to the mirror.

The position of the image is at the same distance behind the mirror as the object is in front of it. If the object is shifted by a distance 'd' towards the mirror, the image will also shift by the same distance 'd' towards the mirror, i.e., the separation between the object and image will decrease by 2d.