LESSON 14- LIGHT, SHADOWS AND REFLECTION

**I. Short answer type questions**

1. What are the two requisites for viewing things?

Ans. The two requisites for viewing things are:

a) Light- we see objects only when the light that falls on the objects gets reflected from their surface and reach our eyes.

b) Eyes- sense the light and help us in viewing the objects.

2. What are luminous objects?

Eg. Sun is a luminous body.

3. What do you understand by luminescence?

Ans. Luminescence is the property of emitting light.

4\\\. On what principle is the working of a pinhole camera based?

Ans. Pinhole camera works on the principle that light travels in straight lines.

5. What is laterally inverted image?

Ans. Laterally inverted image is an image formed in a mirror which is inverted from ‘right’ to ‘left’ and from ‘left’ to right’.

Eg. While viewing our own image in a mirror holding the right ear with the right hand we will observe that the image in the mirror is holding the left ear with the left hand.

6. What is rectilinear propagation of light?

Ans . The motion of rays of light from its source to the object on which it falls is called propagation of light. Light travels in straight lines. This is called rectilinear propagation of light.

7. What is a shadow?

Ans .A shadow is a dark patch formed behind an opaque object when it obstructs the path of the source of light.

**II. Long answer type questions**.

1. Describe the characteristics of the image formed on a pinhole camera.

Ans. The characteristics of the image formed on the screen of the pinhole camera are:

a) The image formed is of the same colour as the object.

b) The image formed is inverted.( upside down)

c) Size of the image formed maybe smaller, of the same size, or bigger than the object depending upon the distance between the pinhole and the screen.

2. List three steps which may help you in getting better image on the screen of a pinhole camera.

Ans.a) Pinhole on the pinhole camera should be fine and small so that a small number of light rays are able to pass evenly through it forming a sharp image on the screen.

b) ]Pinhole camera, especially its screen, should be kept in shade or covered with a black cloth.

c) The object, facing the pinhole on the camera should be in bright light or sunshine.

3. What are the characteristics of a shadow?

Ans. a) Shadow is erect.

b) Shadow is dark irrespective of the colour of the object or the colour of the surface on which the shadow is being formed.

c) The size of the shadow maybe the same, bigger or shorter as of the size of the object depending on the distance between the object and the screen.

4. What is meant by the reflection of light?

Ans.The bouncing back of the light rays which fall on the surface of an object is called reflection of light. All surfaces reflect light. But an image is formed only in a smooth sparkling mirror like surface and is called reflected image.

5. Why do we not find the shadow of a flying bird on the ground?

Ans. When the bird is flying up in the sky its shadow gets so faint that it is not seen on the ground. This is because of the increase in the distance between the flying bird and its shadow.

6. What is scattering of light? How scattering of sunlight serves us? Ans. Light reflected from a rough surface is **scattered light or diffused** **reflection** .Rays of light falling on the rough surface are reflected in different directions and the light is scattered all around .It is the scatte nring of light that help us to see the things around us. With the sunrise there is light in our room even though sunrays may not be reaching our room directly.

**III. Compare the following**.

1. Shadow and the image in the pinhole camera

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| --- | --- | --- |
|  | Shadow | Image in the pinhole camera |
| **a)** | Shadow is erect | Image is inverted. |
| b) | Shadow is always dark. | Image formed is of the same colour as the object. |
| c) | Shadow shows only the outline shape of the object. | Image shows all the details of the object. |

2. Regular reflection and Irregular reflection.

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| --- | --- | --- |
|  | Regular reflection | Irregular reflection |
| a) | Reflection of light from a smooth surface is regular reflection. | Reflection of light from a rough surface is called irregular reflection. |
| b) | A beam of light striking a smooth surface is reflected back as a beam. | Ray of light falling on a rough surface is reflected in different directions. |
| c) | Help us to see our image in a mirror. | Help us to see the things around us. |

3. Real image and virtual image.

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| --- | --- | --- |
|  | Real image | Virtual image |
| a) | An image formed on a screen is called a real image. | Image formed in the mirror is the virtual image. |
| b) | Image is not laterally inverted. | Image is always laterally inverted, not upside down. |