LIVING SCIENCE CLASS6 SOLUTION CHAPTER 12. LIGHT, SHADOWS AND REFLECTIONS

P. 134 Oral Questions For Formative Assessment

1. speed of light

2. non-luminous objects

3. No. opaque

4. tracing paper, ground glass

P. 139 Oral Questions For Formative Assessment

1. No, as the light will not be obstructed by the object.

2. Yes, but we need an object so that it obstructs the light from the luminous body.

3. In both the cases

4. False. it can be of the same size, smaller or bigger than the object depending on the distance of the object from the pinhole as compared to the distance of the screen from the pinhole.

5. true

6. A red shadow can be formed when a semi-transparent red-coloured glass or plastic sheet is placed in the path of a light source.

7. The ray of light will be reflected by the plane mirror to a different direction.

P 140 For Formative and Summative Assessment

A. 1. b 2. d 3 b 5. c 6 c 7. d 8.a.

B. 1. no 2. non-luminous 3. luminous 4. true 5. no 6. on a new moon day

7. true 8. false 9. moon 11. image 10. translucent 12. no 13. yes

C. 1. Light travels from the sun to the earth in 8minutes. So we see the sun rising 8 minutes after it has actually risen.

2. Sun, firefly are natural sources of light. Candle, electric bulb are artificial sources of light.

3. When light falls can a non-luminous object. it gets reflected in different directions. When this reelected light reaches our eyes. we can see the object.

4. The property of light of travelling in straight lines is called rectilinear propagation of light.

5. Translucent objects are those objects that allow some light to pass through but not enough to enable us to see clearly through it. Examples are butter paper and ground glass.

6. A shadow is formed when light from a source is obstructed by an opaque object.

7. During a solar eclipse, the dark side of the moon faces the earth. Therefore. a solar, eclipse always occurs on a new moon day.

8. We can see an image of an object in a plane mirror when light from the object reaches our eyes after reflection from the plane mirror.

D. 1. We depend on light energy for food, oxygen and fuel because green plants prepare food using the energy of light. Similarly the energy of all fossil fuels such as petroleum, coal and natural gas has also been derived from the light energy of the sun

2. Take three rectangular pieces of cardboard. Make holes in them at exactly the same level. Make them stand straight on a table using wooden supports. Keep a burning candle on the table, with its flame at the level of the holes. Now adjust the cardboards so that we can see the candle flame through the holes. We will find that the flame can only be seen when the holes are exactly in a straight line. This proves that light travels in straight lines.

3. (i) A shadow is black in colour. (ii) It is similar in shape to the object. (iii) It does not show any details of the object.

4. a. Region C b. Region between A and B see fig

5. The differences between an image and a shadow are:

(i) A shadow is black while an image is of the same colour as the object.

(ii) A shadow is similar in shape to the object, but shows no other details about the object. An image is not only of the same shape as the object but has all the details that the object has.

6. see diagram from book : A pinhole camera

7. see diagram from book : Reflection of light rays by a plane mirror

HOTS questions

1. A translucent object will form a shadow. Darker because no light can pass through an opaque object.

2. Yes, when there are more than one sources of light. A shadow is formed from each light source present in a scene. Therefore, two or more shadows can be formed at the same time by the object.

3. Black

4. A pinhole camera forms an image since it is formed by light from the object actually falling on the screen.

5. Yes, if the distance of the object from the pinhole smaller than the distance of the screen from the pinhole.