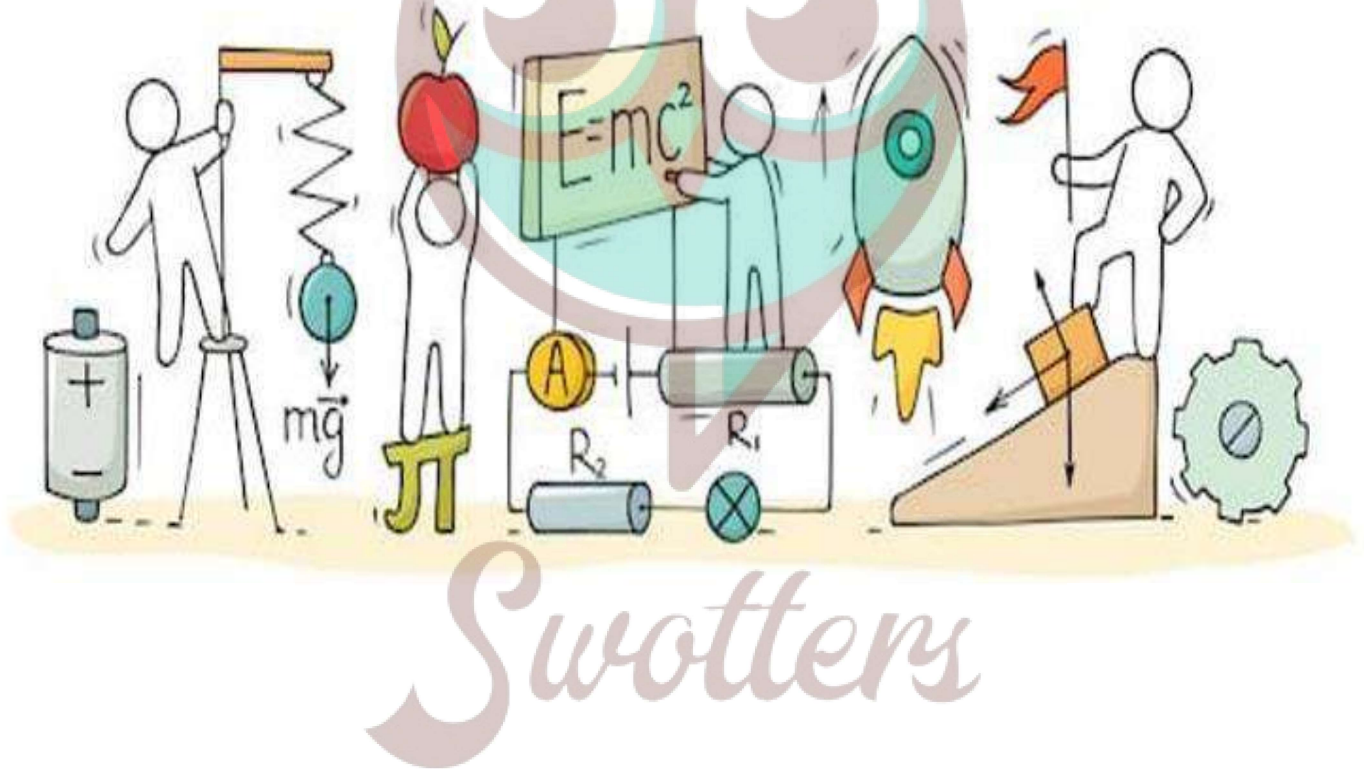


SCIENCE

Chapter 11: Light, Shadows and Reflection



Important Questions

Multiple Choice Questions:

Question 1. Light travels in

- (a) straight line
- (b) curved line
- (c) zig-zag line
- (d) randomly

Question 2. When an opaque object comes in the path of light it forms

- (a) an image with colours
- (b) shadow
- (c) black and white image
- (d) depends on the colour of the light

Question 3. Which types of objects do not allow light to pass through them?

- (a) Translucent
- (b) Opaque
- (c) Transparent
- (d) Penumbra

Question 4. Which is an example of a translucent object?

- (a) A thin sheet of paper
- (b) A thin glass slab
- (c) A thin iron sheet
- (d) All of these

Question 5. Bouncing back of light from shining surfaces is called

- (a) Reflection
- (b) Refraction
- (c) Bending
- (d) Dispersion

Question 6. What is lateral inversion?

- (a) Image becomes inverted
- (b) Image bends laterally
- (c) Right of the object appears left of the image

(d) All of these happen

Question 7. Which letters of English alphabet will not show lateral inversion?

(a) I, O, U

(b) N, Z, X

(c) I, X, E

(d) A, E, I

Question 8. Which is a device to image the sun?

(a) Plane mirror

(b) Pinhole camera

(c) A straight pipe

(d) Glass slab

Question 9. Which of the following is a cold source of light?

(a) Firefly (Jugnu)

(b) Tube light

(c) The sun

(d) Electric bulb

Question 10. Out of these, which one is not a man-made luminous body?

(a) Electric bulb

(b) Burning candle

(c) Firefly (Jugnu)

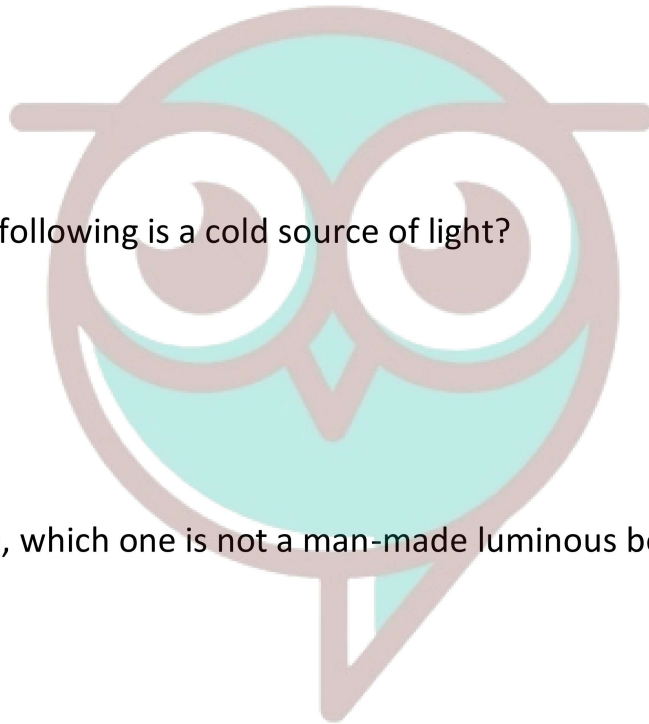
(d) Oil lamp

Very Short Question:

1. Whether the moon is luminous or non-luminous body?
2. What is umbra?
3. How does a light ray travel?
4. Give one natural source of light.
5. What is shadow?
6. What is penumbra?

Short Questions:

1. State difference between a luminous and a non-luminous body.
2. Why is the moon not considered as a luminous body?
3. What is an incandescent body? Give example.



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4. When does a shadow form?
5. Draw a diagram to illustrate the formation of umbra and penumbra.
6. What are the essential conditions for the formation of shadow?
7. Define reflection of light.
8. Write difference between shadow and image.

Long Questions:

1. What is reflection of light? Explain reflection of light with the help of an activity.
2. Explain the manner in which light travels with the help of an activity.
3. Explain that light has the property of rectilinear propagation.

Answer Key-

Multiple Choice Answers:

1. (a) straight line
2. (b) shadow
3. (b) Opaque
4. (a) A thin sheet of paper
5. (a) Reflection
6. (c) Right of the object appears left of the image
7. (a) I, O, U
8. (b) Pinhole camera
9. (a) Firefly (Jugnu)
10. (c) Firefly (Jugnu)

Very Short Answers:

1. Answer: Moon is non-luminous body.
2. Answer: Umbra is the dark region behind object facing light which does not receive light at all.
3. Answer: Light ray travels in a straight line.
4. Answer: Sun is a natural source of light.
5. Answer: Shadow is the dark space behind an opaque object where light does not reach.
6. Answer: The less darker shadow formed penumbra. on the periphery of dark shadow is called penumbra.

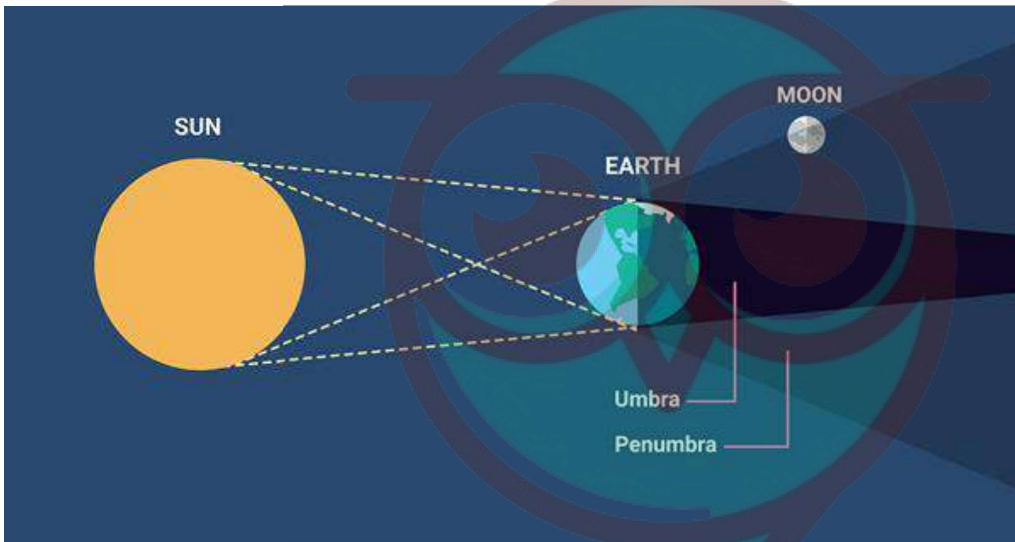
Short Answer:

1. Answer: The bodies which emit light are called luminous bodies. Example: sun, stars,

burning candle etc.

The bodies which does not emit light are called non-luminous bodies. Example: moon, earth, blackboard.

2. Answer: Moon is non-luminous body because it shines by reflecting the sunlight falling on it.
3. Answer: The bodies which emit light when heated to a very high temperature are called incandescent bodies. Example: electric bulb.
4. Answer: Shadow is formed when light does not reach behind the opaque object kept in the path of light
5. Answer:



6. Answer:
 - (i) There should be an opaque material.
 - (ii) There should be a source of light and screen.

The object must be placed in the path of light. Then shadow is formed on the screen.

7. Answer: When light rays after striking the smooth and shiny surface return to same medium, this phenomenon is called reflection of light.
8. Answer:

Image	Shadow
It is formed by intersection of reflected rays.	Shadow is formed when light does not reach behind the object.
Image is seen when reflected rays approach to observer's eyes.	No light enters the observer's eyes.
Image gives more information such as	Shadow does not provide such

colour, structure etc.	information.
Image can be straight or inverted.	Shadow is never inverted.

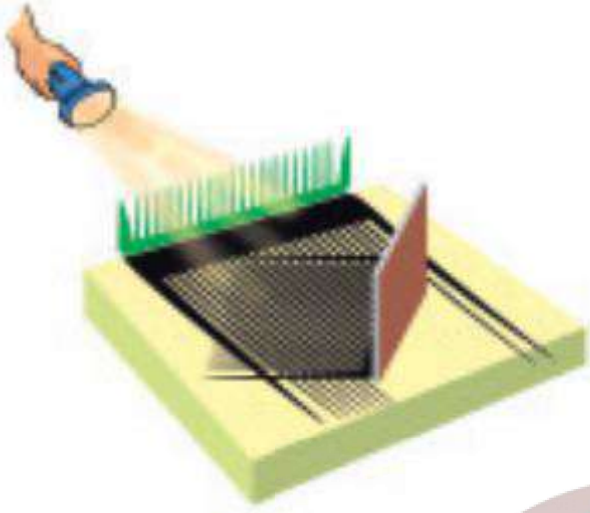
Long Answer:

1. Answer: When light rays fall on a highly polished (e.g. mirror) smooth surface and return to the same medium, it is called reflection of light.

Activity to show reflection of light: This activity should be done at night or in a dark room. Ask your friend to hold a mirror in his hand at one corner of the room. Stand at another corner with a torch in your hand. Cover the glass of torch with your fingers and switch it on. There should be small gap between your fingers. Direct the beam of torch-light on to the mirror that your friend is holding. Adjust the direction of torch so that patch of light falls on your friend standing in the room. This activity shows the reflection of light also that light travels in straight line.



2. Answer: Take a comb and fix it on one side of a thermocol sheet. Fix a mirror on the other side as shown in figure. Spread a dark coloured sheet of paper between the mirror and the comb. Send a beam of light from a torch through the comb. You get a pattern of light similar to that shown in figure. This activity explains the manner in which light travels and gets reflected from a mirror.



3. Answer: We take three pieces of cardboard. Place them one on the top of one another and make a hole in the middle of each cardboard by using a thick nail. Erect these cards up on the table at a short distance away from each other. Take a candle which is of the same height as the holes in the cards. Light the candle and place it in front of the cards. We see that the light of candle is visible only when the holes on cards lie in a straight line. If we disturb them the light of candle disappears. This experiment shows that light propagates in a straight line.

