16 Light

Multiple Choice Questions

1. Part of the eye which controls the light entering is called
   (a) iris
   (b) cornea
   (c) lens
   (d) retina

2. We can see a non-luminous object when light:
   (a) emitted by the object falls on the eye.
   (b) is reflected from the object towards our eye.
   (c) completely passes through the object.
   (d) gets completely absorbed by the object.

3. Light is falling on surface S_1, S_2, S_3 as shown in Fig.16.1.

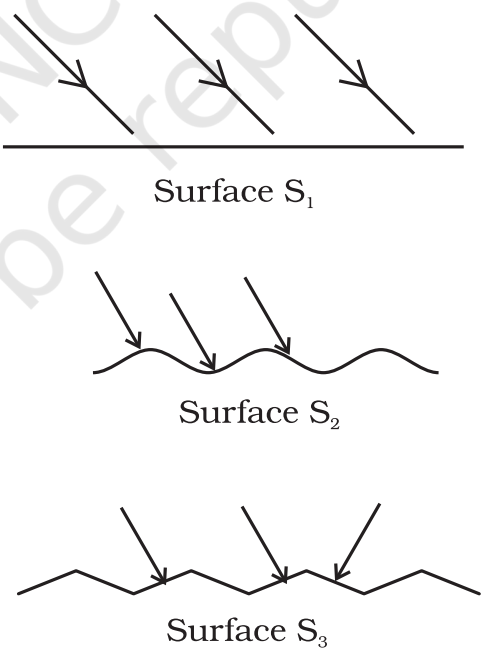


Fig.16.1

Surfaces on which the angle of incidence is equal to the angle of reflection is/are

(a) S_1 only
(b) S_1 and S_2 only
(c) S_2 and S_3
(d) all the three surfaces

4. A tiny mirror M is fixed on a piece of cardboard placed on a table. The cardboard is illuminated by light from a bulb. The position of eye with respect to position of bulb is shown in Fig.16.2 as A, B, C and D. In which position mirror will be visible?

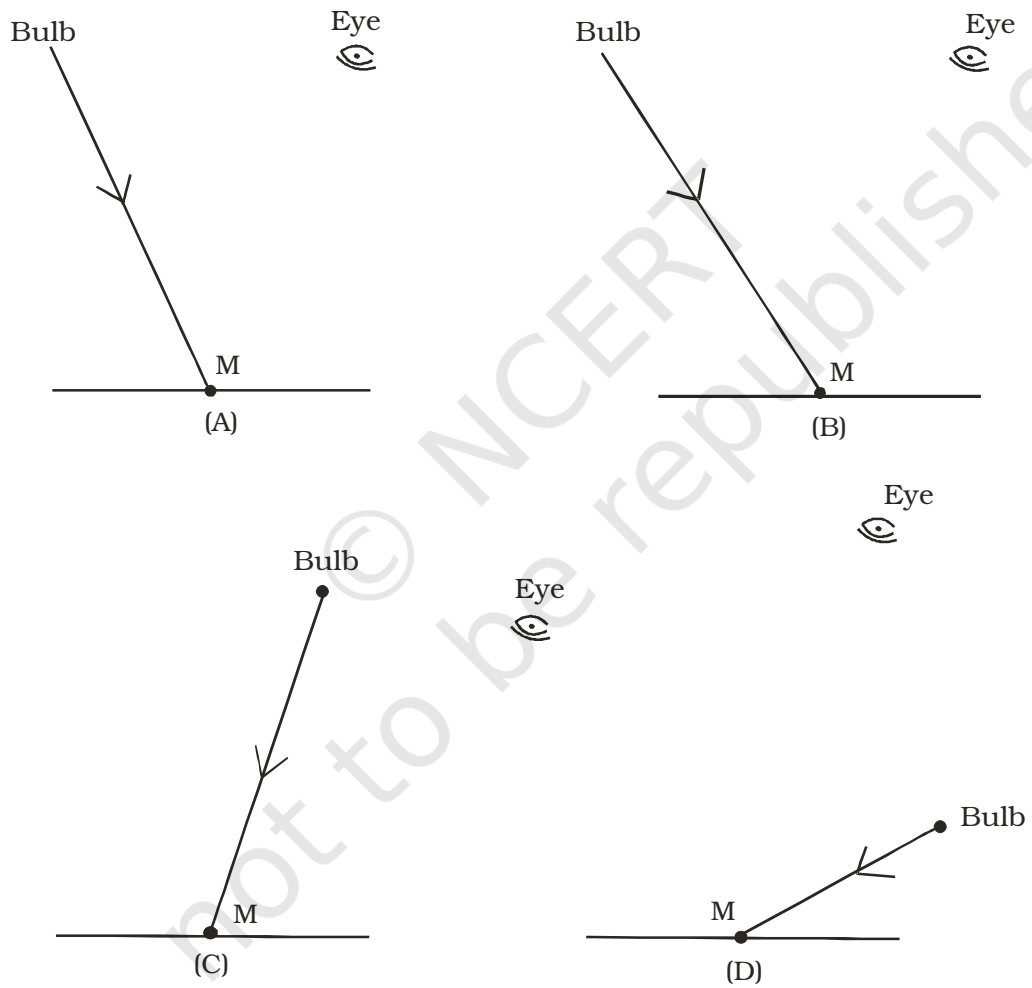


Fig. 16.2

a. A
b. B
c. C
d. D

5. A small hole P is made in a piece of cardboard. The hole is illuminated by a torch as shown in Fig. 16.3. The pencil of light coming out of the hole falls on a mirror.

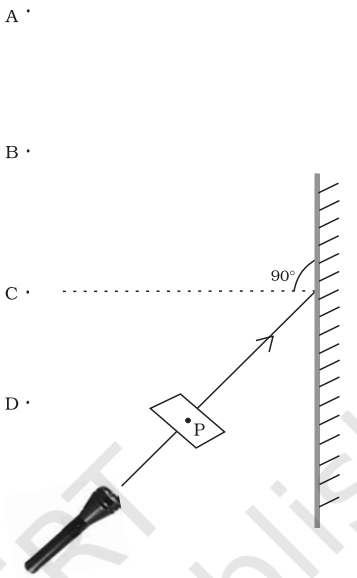


Fig. 16.3

At which point should the eye be placed so that the hole can be seen?

(a) A (c) C
(b) B (d) D

6. Two mirrors A and B are placed at right angles to each other as shown in Fig.16.4.

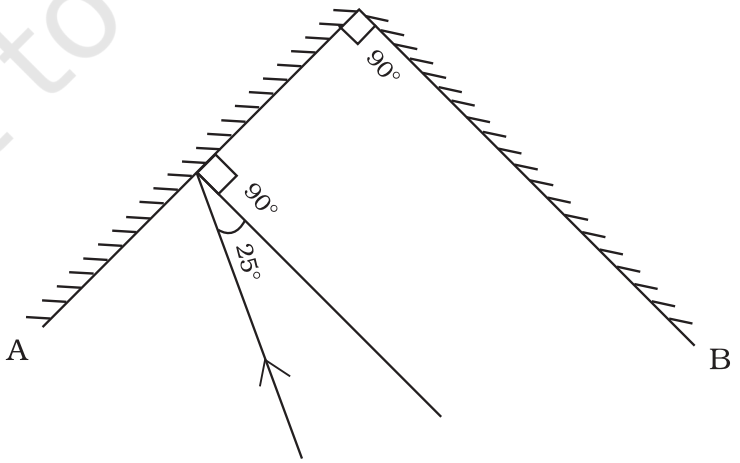


Fig.16.4

A ray of light incident on mirror A at an angle of 25^0 falls on mirror B after reflection. The angle of reflection for the ray reflected from mirror B would be

(a) 25^0 (c) 65^0
(b) 50^0 (d) 115^0

7. Which of the following statements is correct regarding rods and cones in the human eye?
   (a) Cones are sensitive to dim light.
   (b) Cones are sensitive to bright light.
   (c) Rods are sensitive to bright light.
   (d) Rods can sense colour.

8. In the figure of the human eye (Fig.16.5), the cornea is represented by the letter

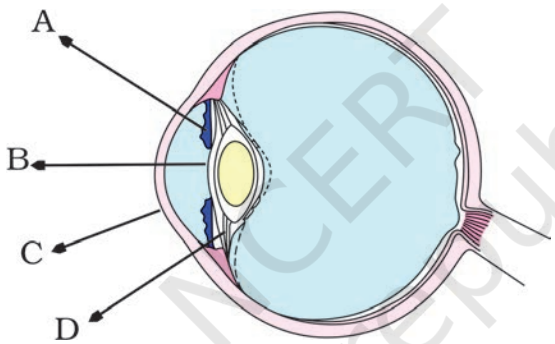


Fig.16.5

(a) A (c) C
(b) B (d) D

VERY SHORT ANSWER QUESTIONS

9. Name the part of the eye which gives colour to the eyes.

10. Boojho while waving his hand very fast in front of his eyes, observes that his fingers appear blurred. What could be the reason for it?

11. How many times is a ray of light reflected by two plane mirrors placed parallel and facing each other?

12. The angle between incident ray and reflected ray is 60°. What is the value of angle of incidence?

13. The distance between the object and its image formed by a plane mirror appears to be 24 cm. What is the distance between the mirror and the object?

SHORT ANSWER QUESTIONS

14. What happens to light when it gets dispersed? Give an example.

15. Draw Fig.16.6 showing the position of the plane mirror. Also label the angle of incidence and angle of reflection on it.

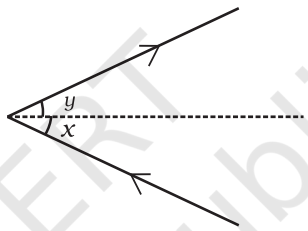


Fig.16.6

16. Look at Fig.16.7. Can the image of the child in it be obtained on a screen?

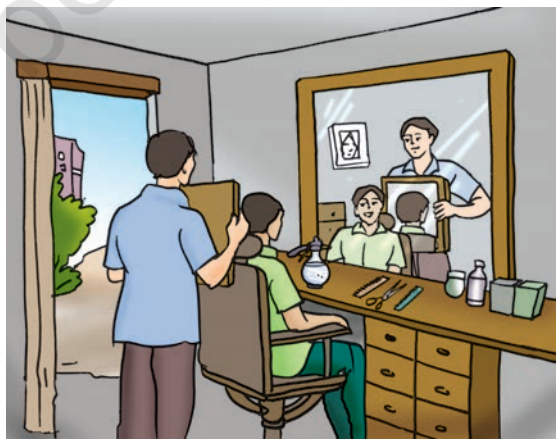


Fig.16.7

17. Eyes of the nocturnal birds have large cornea and a large pupil. How does this structure help them?

18. What kind of lens is there in our eyes? Where does it form the image of an object?

19. Which part of the eye gets affected if someone is suffering from cataract? How is it treated?

LONG ANSWER QUESTIONS

20. Boojho planned an activity to observe an object A through pipes as shown in Fig. 16.8, so that he could see objects which he could not directly see.

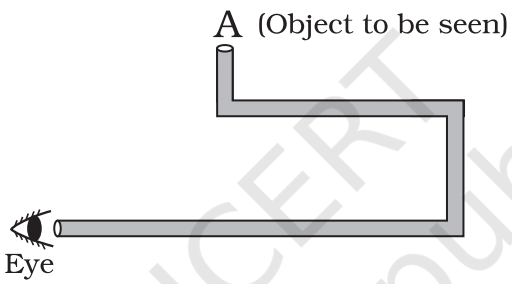
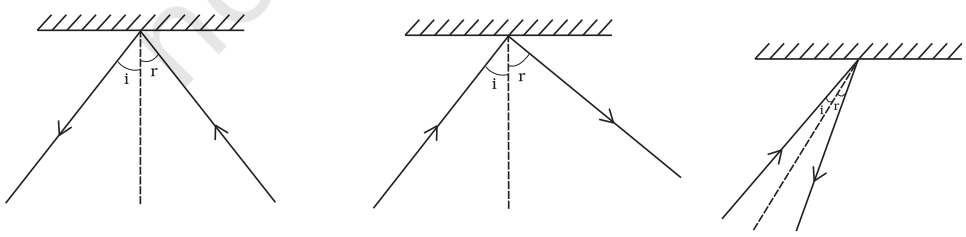


Fig. 16.8

(a) How many mirrors should he use to see the objects?
(b) Indicate the positions of the mirrors in the figure.
(c) What must be the angle with respect to the incident light at which he should place the mirrors?
(d) Indicate the direction of rays in the figure.
(e) If any of the mirrors is removed, will he be able to see the objects?

21. There is a mistake in each of the following ray diagrams given as Fig. 16.9 a, b, and c. Make the necessary correction (s).



(a) (b) (c)

Fig. 16.9

22. Explain the process which enables us to perceive motion in a cartoon film.

23. How is the phenomenon of reflection used in making a kaleidoscope? What are the applications of a kaleidoscope?

24. Fig. 16.10 shows the word REST written in two ways in front of a mirror. Show how the word would appear in the mirror.

Fig. 16.10

25. Write down the names of parts of the eye in the blank spaces shown in Fig. 16.10.

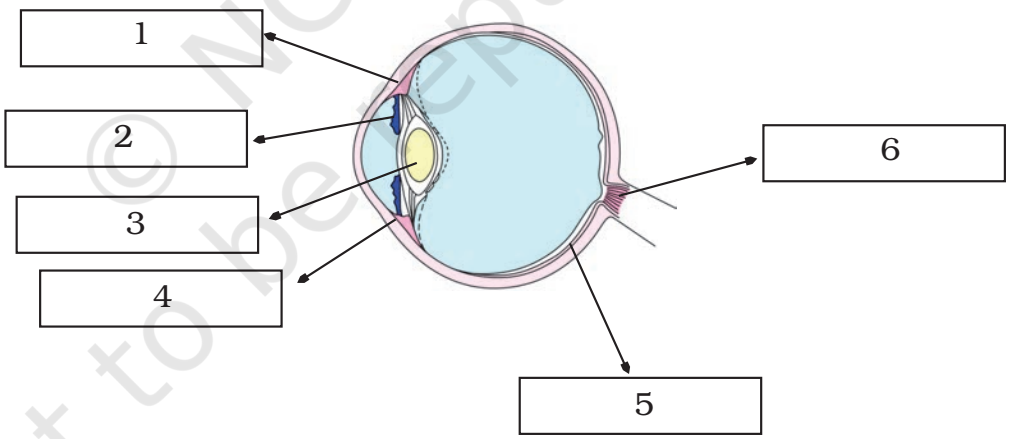


Fig. 16.11