

Science

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(Chapter 11) (Human Eye and Colourful World)

(Class – X)

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Question 1:

What is meant by power of accommodation of the eye?

Answer 1:

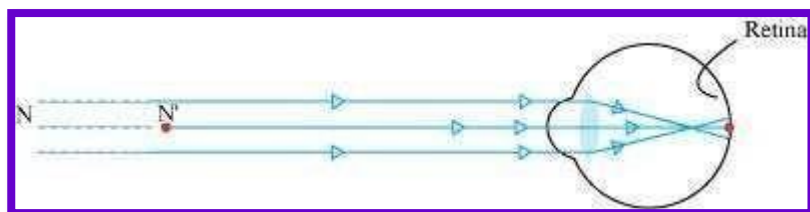
When the ciliary muscles are relaxed, the eye lens becomes thin, the focal length increases, and the distant objects are clearly visible to the eyes. To see the nearby objects clearly, the ciliary muscles contract making the eye lens thicker. Thus, the focal length of the eye lens decreases and the nearby objects become visible to the eyes. Hence, the human eye lens is able to adjust its focal length to view both distant and nearby objects on the retina. This ability is called the power of accommodation of the eyes.

Question 2:

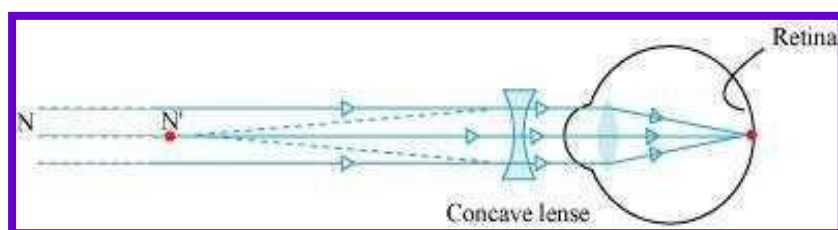
A person with a myopic eye cannot see objects beyond 1.2 m distinctly. What should be the type of the corrective lens used to restore proper vision?

Answer 2:

The person is able to see nearby objects clearly, but he is unable to see objects beyond 1.2 m. This happens because the image of an object beyond 1.2 m is formed in front of the retina and not at the retina, as shown in the given figure.



To correct this defect of vision, he must use a concave lens. The concave lens will bring the image back to the retina as shown in the given figure.



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Question 3:

What is the far point and near point of the human eye with normal vision?

Answer 3:

The near point of the eye is the minimum distance of the object from the eye, which can be seen distinctly without strain. For a normal human eye, this distance is 25 cm. The far point of the eye is the maximum distance to which the eye can see the objects clearly. The far point of the normal human eye is infinity.

Question 4:

A student has difficulty reading the blackboard while sitting in the last row. What could be the defect the child is suffering from? How can it be corrected?

Answer 4:

A student has difficulty in reading the blackboard while sitting in the last row. It shows that he is unable to see distant objects clearly. He is suffering from myopia. This defect can be corrected by using a concave lens.

