Chapter- 11

Human Eye and Colourful World

I VERY SHORT QUESTIONS:

1. What is the nature of the image formed at the retina of human eye?
2. Write the function of iris in the human eye?
3. Name the part of human eye which acts as a screen to obtain the image of an object.
4. What is the function of pupil in human eye?
5. Name the following part of human eye :A thin membranes through which light enters the eye?
6. Why does the sky appear dark to astronauts?
7. Name the essential parts of human eye?
8. what is cornea?
9. Which liquid fills the space behind the cornea?
10. What is iris?
11. Which part of the eye controls the amount of light entering the eye?

What is lens made of?

12. What is astigmatism?
13. What is presbyopia?
14. Define dispersion or white light?
15. What happens to the image distance in the eye when we increase the distance of an object from the eye?
16. How is near sightedness corrected?
17. How is long sightedness corrected?
18. What is twinkling of stars due to? 19.Why does sky look blue on a clear day?
20. Name the three phenomenon of light responsible for the formation of rainbow in the sky?

21. Name the part of human eye that helps in changing the focal length of the eye lens?
22. Light of two colours A and B pass through a glass prism. 'A' deviates more than B from its path of incidence. Which colour has a higher speed in the prism?
23. What is Tyndall effect? 24.What is dispersion of light?
25. What is meant by power of accommodation of the eye? 26.What is colour blindness?
27. What is blind spot?

II SHORT QUESTIONS:

1. Why do we see a rainbow in the sky only after rainfall?
2. We can see the sun for few minutes even after it has actually set. Explain why?
3. The ciliary muscles of a normal eye are in their(i) most relaxed (ii) most contracted state. In which of the two cases is the focal length of the eye –lens more?
4. When white light passes through a glass prism, seven colors namely red, orange, yellow, green, blue, indigo and violet are seen on the white screen. All these colors have different angles of deviation. Explain why?
5. How do we see colors?
6. What is meant "persistence of vision'? We are able to see the movie picture in a cinema hall. How does this happen?
7. Why does the sun appear reddish early in the morning?
8. Why does the sky appear dark instead of blue to an astronaut?
   What is meant by scattering of light? Use this phenomenon to explain why the clear sky appears blue or the sun appears reddish at sunrise?

9. The far point of a myopic person is 80 cm in front of the eyes. What is the nature and power of the lens required to enable him to see very distance objects distinctly?
10. the far point of a myopic person is 150 cm in front of the eye. Calculate the focal length and the power of a lens required to enable him to see distant objects clearly?

III LONG QUESTIONS:

1. Write different parts of eye and explain their functions. Also explain, how an image of an object is formed on the retina of eye?
2. What is short –sightedness? List two causes for development of short-sightedness. Describe with a ray diagram how this defect may be corrected using spectacles?
3. What is long-sightedness? List two causes for development of long-sightedness. Describe with a ray diagram, how this defect may be corrected using spectacles?
4. A person can see clearly only up to 3 meters. Prescribe a lens for spectacles so that he can see clearly up to 12 meters.
5. 10.The near point of a hypermetric eye is 1 m? What is the power of the lens required to correct this defect? Assume that the near point of the normal eye is 25 cm?
6. 11. The far point of a myopic person is 80 cm in front of the eye. What is the nature and power of the lens required to correct the problem?
7. A student cannot properly from the blackboard while siiting on the front desk in a classroom of a big size. He however, can read clarly while sitting on the last desk of the classroom.
8. a) Draw ray diagrams to illustrate the formation of image of the blackboard writing by his eye lens when he is seated at (i) the front desk (ii) last desk
   b) Name the defect of the eye from which the student is suffering.
   c)Name the type of lens that would enable him to see the blackboard writing clearly, when seated on the front desk. Draw a ray diagram to illustrate how this lens helps him to see clearly?

IMPORTANT QUESTIONS

1. What eye defect is hypermetropia? Describe with a ray diagram how this defect of vision can be corrected by using an appropriate lens. (CBSE 2011)

2. A star sometimes appears brighter and some other times fainter. What is this effect called?

State the reason for this effect. (CBSE 2012)

3. A student cannot see a chart hanging on a wall placed at a distance of 3 m from him. Name the defect of vision he is suffering from. How can it be corrected? (CBSE 2012)

Draw ray diagrams for the (i) defect of vision and also (ii) for its correction

4. Why is red color selected for danger signal lights? (CBSE 2008)

5. (a) A person cannot read newspaper placed nearer than 50 cm from his eyes. Name the defect of vision he is suffering from. Draw a ray diagram to illustrate this defect. List its two possible causes. Draw a ray diagram to show how this defect may be corrected using a lens of appropriate focal length.

(b) We see advertisements for eye donation on television or in newspapers. Write the importance of such advertisement. (CBSE 2013)

6. Explain giving reason why the sky appears blue to an observer from the surface of the earth? What will the color of the sky be for an astronaut staying in the international space station orbiting the earth? Justify your answer giving reason. (CBSE 2013)

7. (a) List three common refractive defects of vision. Suggest the way of correcting these defects.

(b) About 45 lac people in the developing countries are suffering from corneal blindness. About 30 lac children below the age of 12 years suffering from this defect can be cured by replacing the defective cornea with the cornea of a donated eye. How and why can students of your age involve themselves to create awareness about this fact among people? (CBSE 2014)

8. With the help of a labeled diagram, explain why the sun appears reddish at the sun-rise and the sunset. (CBSE 2015)

9. (a) What is dispersion of white light? What is the cause of this dispersion? Draw a diagram to show the dispersion of white light by a glass prism.

(b) a glass prism is able to produce a spectrum when white light passes through it but a glass slab does not produce any spectrum. Explain why? (AI CBSE 2008)

HOTS

1. What is a diameter of human eye?
2. What is the function of crystalline lens of human eye?
3. In which type of eye defect far point of the eye gets reduced?
4. Why do birds fly back to their nest in the evening?
5. Why do you take time to find object when you enter in dim lighted room from outside in the sun?
6. Why does ray of light splits when passed from prism?
7. Why doesn't planet appear to be twinkling?
8. Why we can't see things very close to our eyes?
9. When we see any object through the hot air over the fire, it appears to be wavy, moving slightly. Explain.
10. Why does sky appear blue on a clear day?