Question 1: **Name any two defects of eye?**

Answer: Myopia and hypermetropia are the most common defects of eye.

Question 2: **Define power.**

Answer: The power of a lens is defined as the reciprocal of its focal length in metres.

Question 3: **What is least distance of distinct vision?**

Answer: The minimum distance upto which an eye can see clearly is called the least distance of distinct vision.

Question 4: **Name the defect of vision in which the eye ball becomes small.**

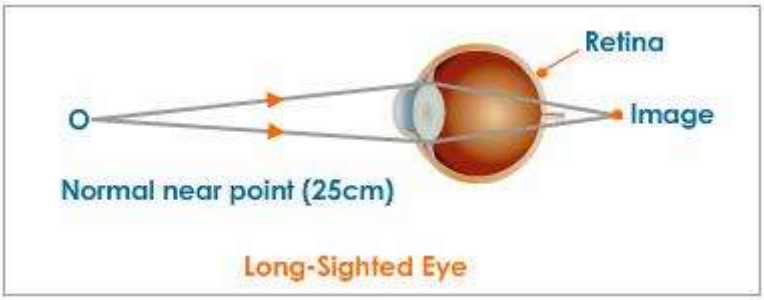
Answer: The defect of vision in which the eyeball becomes small is hypermetropia.

Question 5: **Explain what is the power of accommodation of an eye.**

Answer: The ability of the eye lens to change its focal length to focus the images of all the objects, distant or nearby on the retina is known as the power of accommodation. The eye lens changes its focal length by changing its thickness with the help of its ciliary muscles.

Question 6: With the help of a ray diagram explain hypermetropia.

Answer: Hypermetropia is the defect of the eye due to which the eye is not able to see clearly the nearby objects though it can see the distant objects clearly.



Question 7: **What causes myopia?**

Answer: Myopia is caused due to the
1) Shortening of the eyeball
2) Increase in focal length of the eye-lens.

Question 8: **What is astigmatism? How is it rectified?**

Answer: Astigmatism is one of the defects of the vision. Here the eye is not able to focus the light coming from the horizontal and vertical planes simultaneously. It is rectified by using cylindrical lens.

Question 9: **Define dispersion.**

Answer: The phenomenon by which, a ray of light splits into its constituent colours, when passed through a transparent medium, is known as dispersion.

Question 10: Name any one source of polychromatic light.

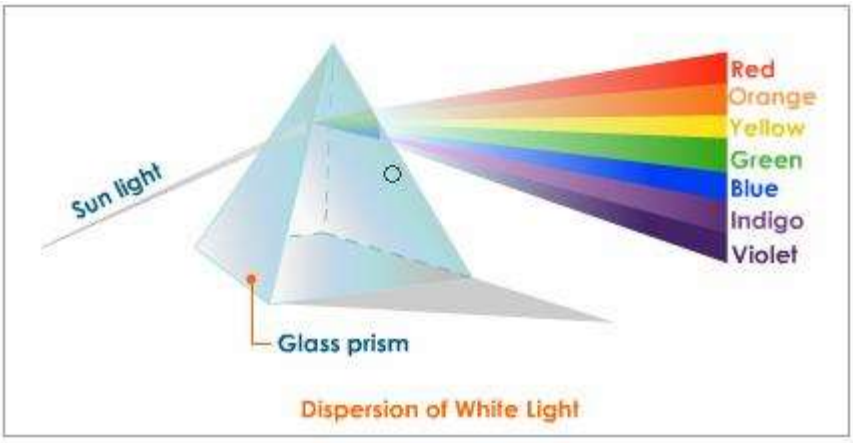
Answer: The sun gives out white light. It is the largest source of polychromatic light.

Question 11: What do you mean by recomposition of white light?

Answer: Recombination of the seven colours of the dispersed white light to get white light is known as recomposition of light.

Question 12: Explain the dispersion of white light by a prism.

Answer: Even though all colours of the visible spectrum travel with same speed in vacuum, the speed of the colours of the visible spectrum varies when they pass through a transparent medium like glass and water. That is, the refractive index of glass is different for different colours.



When a polychromatic light like white light is incident on the first surface of the prism and enters it, each constituent of the white colour is refracted through a different angle, i.e., white light gets dispersed. When these colours are incident on the second surface of the prism they again undergo refraction (they get refracted from a denser to rarer medium) and the colours are separated further. Thus a beam of white light incident on a prism splits into its constituent colours to form a spectrum.

Each constituent of the white light is deviated towards the base of the prism. Violet colour suffers the maximum deviation and red the least. The spectrum obtained is impure as the colours in the spectrum do not have any sharp boundaries i.e., each colour merges gradually into the nex

Question 13: What is least distance of distinct vision?

Answer: The minimum distance upto which an eye can see clearly is called the least distance of distinct vision.

Question 14: Name the part of the eye which is equivalent to 1) diaphragm 2) photographic plate, in a camera.

Answer: 1) Iris of the eye is equivalent to the diaphragm
2) retina is equivalent to a photographic plate

Question 15: What is the nature of the image formed on the retina? What kind of lens is present in our eye?

Answer: Real, inverted and diminished image is formed on the retina. A convex lens made of a transparent jelly-like proteinous material is present in our eye.

Question 16: How is the amount of light entering the eyes controlled? What change is made in the eye to enable it to focus the objects situated at different distances?

Answer: The iris regulates the amount of light entering the eye by adjusting the size of the pupil.

Question 17: What is the role of the ciliary muscles in the normal functioning of an eye?

Answer: The eye lens is held in position by ciliary muscles. The ciliary muscles help the eye lens to change its focal length to form the image of the objects placed at different positions.

Question 18: What is astigmatism? How is it rectified?

Answer: Astigmatism is one of the defects of the vision. Here the eye is not able to focus the light coming from the horizontal and vertical planes simultaneously. It is rectified by using cylindrical lens.