Chapter-2

Worksheet-2

Section 1

Q1. A 14-year old student is not able to see clearly the questions written on the blackboard placed at a distance of 5 m from him.
(a) Name the defect of vision he is suffering from.
(b) With the help of labelled ray diagrams show how this defect can be corrected.
(c) Name the type of lens used to correct this defect.

Q2. What is meant by spectrum of white light? How can we recombine the components of white light after a prism has separated them? Draw a diagram to illustrate it.

Q3. Explain why do the planets not twinkle but the stars' twinkle.

Q4. (a) What is dispersion of white light? What is the cause of such 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 is it so?

Q5. (a) Explain the following terms used in relation to defects in vision and correction provided by them:
(i) Myopia (ii) Astigmatism (iii) Bifocal lenses (iv) Far-sightedness.
(b) Why is the normal eye unable to focus on an object placed within 10 cm from the eye?

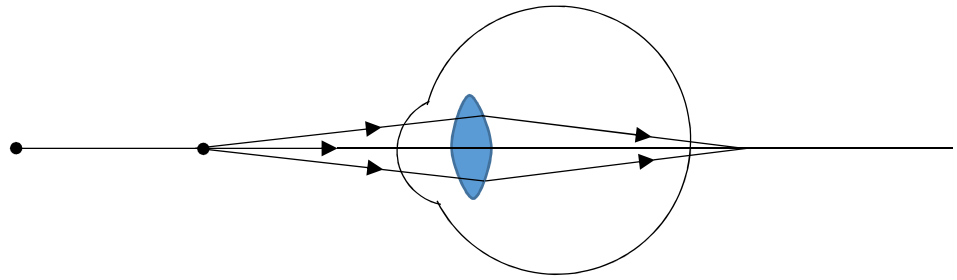
Q6. A star appears slightly higher (above) than its actual position in the sky. Illustrate it with the help of a labelled diagram.

Q7. a) What is meant by the power of accommodation of an eye?
(b) A person with a myopic eye cannot see objects beyond 1.2 m directly. What should be the type of the corrective lens used? What would be its power?

Q8. What is the colour of the clear sky during day time? Give reason for it.

Q9. A person is advised to wear spectacles with convex lenses. What type of defect of vision is he suffering from?

Q10. Study the diagram given below and answer the questions that follow it:



(a) Which defect of vision is represented in this case? Give reason for your answer.
(b) What could be the two causes of this defect?
(c) With the help of a diagram show how this defect can be corrected by the use of a suitable lens.

Section 2

Q11. A student traces the path of a ray through a glass prism for four different values of angle of incidence. On analysing the diagrams, he is likely to conclude that the emergent ray

(a) is always parallel to the incident ray.
(b) is always perpendicular to the incident ray.
(c) is always parallel to the refracted ray.

(d) always bends at an angle to the direction of incident ray.

Answer: d

Q12. A student is observing the diagram showing the path of a ray of light passing through a glass prism. He would find that for all angles of incidence the ray of light bends:

(a) towards the normal while entering into the prism and away from the normal while emerging out of the prism
(b) away from the normal while entering into the prism and towards the normal while emerging out of the prism.
(c) away from the normal while entering as well as while emerging out of the prism.
(d) towards the normal while entering as well as while emerging out of the prism.
Answer: a

Q13. The splitting of white light into its component colours is called

(a) refraction
(b) reflation
(c) dispersion
(d) Tyndall effect
Answer: c

Q14. Reason behind advance sunrise and delayed sunset

(a) atmospheric refraction
(b) total internal reflection
(c) dispersion
(d) reflection

Answer: c

Q15. Type of lens used in correction of myopia

(a) convex lens
(b) concave lens
(c) reflecting lens
(d) bifocal lens
Answer: b

Q16. Myopia may arise due to

(a) excessive curvature of the eye lens
(b) elongation of the eyeball
(c) both (a) and (b)
(d) none of these
Answer: c

Q17. In an experiment to trace the path of a ray of light through a glass prism for different values of angle of incidence a student would find that the emergent ray:

(a) is parallel to the incident ray
(b) is perpendicular to the incident ray
(c) is parallel to the refracted ray
(d) bends at an angle to the direction of incident ray
Answer: d

Q18. A dark muscular membrane which controls size of pupil

(a) eye
(b) iris
(c) cornea

(d) retina

Answer: b

Q19. Least distance of distinct vision for normal eye is

(a) 25 cm
(b) 50 cm
(c) 75 cm
(d) infinity

Answer: a

Q20. Crystalline lens of people at old age becomes milky and cloudy. This condition is called

(a) myopia
(b) lever
(c) cataract
(d) presbyopia

Answer: c