

Question Bank - Grade10

Physics

Chapter 11

The Human Eye and The Colourful World

Answer the following:

- 1) Label the following parts of a human eye and write the function of each part.
 - a) Pupil
 - b) Iris
 - c) Cornea
 - d) Crystalline lens
 - e) ciliary muscles
 - f) Retina
 - g) Optic nerve
- 2) What is meant by power of accommodation? Explain near point and far point of the eye with normal vision.
- 3) Why are we not able to see the things clearly when we come out of a darkroom?
- 4) Explain the defects of vision and their correction with the help of diagrams.
- 5) A person with a myopic eye cannot see objects beyond 1.2 m distinctly. What should be the corrective lens used to restore proper vision?
- 6) What is meant by dispersion of white light by a glass prism?
- 7) What is a spectrum?
- 8) Describe an experiment to discuss the recombination of dispersed light
- 9) Which colour has largest wavelength?
- 10) What is atmospheric refraction?

- 11) Explain the formation of rainbow in the sky with the help of a diagram.
- 12) Explain how stars twinkle?
- 13) Why don't the planets twinkle?
- 14) Why does the Sun appear reddish early in the morning?
- 15) Why does the sky appear dark to an astronaut?
- 16) Name the component of white light that deviates the least and the most while passing through a prism.
- 17) A person needs a lens of power -2.5 dioptres for correcting his vision. Name the defect of vision he is suffering from. Which lens will he be using for the correction? Also, find the focal length of lens.
- 18) 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 distant objects distinctly?
- 19) A person needs a lens of power -0.5 dioptre for correcting his distant vision he needs a lens of power $+1.5$ dioptre for correcting his near vision. What is the focal length of the lens required for correcting his (1) distant vision, (2) near vision?
- 20) 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.
- 21) 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?
- 22) If your eye glasses have focal length 60 cm what is your near point?
- 23) Why do we observe random wavering or flicking of the objects near a fire or on a very hot day?
- 24) Why do different colours deviate through different angles on passing through a prism?
- 25) What is the basic cause of atmospheric refraction?
- 26) A certain person has minimum distance of distinct vision of 150 cm. He wishes to read at a distance of 25 cm. What focal length glass should he use? What is the nature of eye defect?
- 27) A star appears slightly higher than its actual position in the sky. Illustrate it with the help of a labelled diagram.

- 28) The near point of a hypermetropic eye is 50 cm. What is the nature and power of the lens required to enable him to read a book placed at 25 cm from the eye?
- 29) 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?
- 30) Explain why?
- (a) A myopic person prefer to remove his spectacles while reading a book
 - (b) A hypermetropic person prefer to remove his spectacles while looking at the sky.