## **PHYSICS**

## HUMAN EYE AND COLOURFUL WORLD QUESTIONS

- 1. What is the least distance of distinct vision ?
- 2. What is angle of vision?
- 3. What is meant by "accommodation" ?
- 4. Doctor advised to use 2D lens. What is its focal length ?
- 5. Define dispersion of light.
- 6. Define scattering of light.
- 7. What is Raman Effect?
- 8. What is the use of Raman Effect?
- 9. What are the functions of rods and cones in the eye?
- 10. Why the pupil appears black ?
- 11. Why deviation is minimum for red color ?
- 12 What will be the colour of the sky in the absence of atmosphere ?
- 13 Why do clouds appear white ?
- 14 How is rainbow formed in the sky ?
- 15 Why is the sequenc of colours in the secondary rainbow reverse of that in the primary rainbow?
- 16. Lakshmi can see nearby objects clearly but not able to see distant objects clearly .
  - 1. What is her eye defect ?
  - 2. Which lens do you suggest to correct her eye defect ?
- 17. Vyshnavi can see letters on the black board when he sat last bench but not able to read text book when it kept near to her .
  - 1. What is her eye defect ?
  - 2. Which lens do you suggest to correct her eye defect ?
- 18. What are L and H in the following figure?
- 19. Name the angles A and d in the figure.
- 20. What type of eye defect in the given figure and what type of lens used to correct this eye defect?

## HUMAN EYE AND COLOURFUL WORLD

## Key

- . The minimum distance from which we can see the objects clearly is called least distance of distinct vision. Its value is 25 cm.
- 2. The maximum angle made at eye by extremes of the object up to which we are able to see the whole object is called as angle of vision. Its value is  $60^{\circ}$ .
- 3. The ability of the eye to adjust the focal length of the eye lens is called "accommodation".

4. 
$$p = \frac{1}{f} \Longrightarrow 2 = \frac{1}{f}$$

f = 1/2m = 0.5m = 50cm

- 5. Dispersion of light : The splitting of white light into different colours (VIBGYOR) is called dispersion of light.
- 6 The process of re emission of absorbed light in all directions with different intensities by atoms or molecules is called scattering of light.
- 7 Raman Effect : The frequency of scattered light by the liquids is greater than the frequency of incident light. This is called Raman Effect.
- 8 Raman Effect is useful to determine the shapes of the molecules.
- 9 1. Rods identify the intensity of light.2. Cones identify the colour of light.
- 10. Any light falling on the pupil goes into the eye without coming back to outside. Hence it appears black.
- 11. Red color gets less refracted, so its deviation is minimum>
- 12. The sunlight will not be scattered in the absence of atmosphere. So the sky will appear dark.
- 13. Clouds have large particles like dust and water droplets which scatter light of all colours almost equally. Hence clouds generally appear white.
- 14. Rainbow is formed by dispersion of sunlight into its constituent colours by raindrops which disperse sunlight by refraction and deviate the colours by total internal reflection.
- 15. This is because a secondary rainbow is formed by two internal reflections of light in water droplets while a primary rainbow is formed by just one total internal reflection.
- 16. 1. Myopia. 2. Bi Concave lens.
- 17. 1. Hyper metropia 2. Bi Convex lens.





L = Least distance of distinct vision

H = near point

19. A= Angle of prism d= Angle of deviation





Eye defect is myopia and bi-concave lens is used to correct this eye defect