UNIT 6

Vision And The World of Colours

06/01/2021 – Class 50

Assignment Answer

1. some people can see distant objects clearly but cannot see nearer objects clearly.
   a) Name this defect of the eye - **Long-sightedness or hypermetropia.**
   b) Write down two reason for it -
      - **The eye ball may be smaller in size.**
      - **The power of the lens may be low. (larger focal length)**
   c) State the remedy - **Use a convex lens of suitable power.**

Activity 1

You have seen lights of different colours.

Discussion

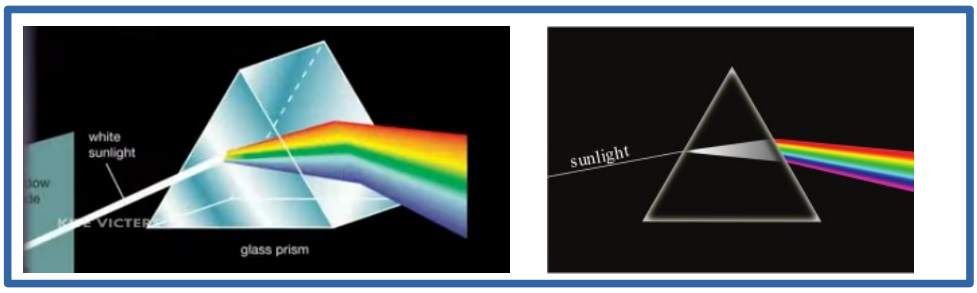
- Lights having more than one colour is called? **Composite light.**
- Does sunlight is a composite light? Why? **Yes. It consists of more than one colour.**

Composite light

Composite light is a light which is composed of **more than one colour**.
Eg: Sunlight, light from a torch.

Activity 2

Pass a light from a torch or sunlight through a prism and allow it to fall on a screen.



Discussion

- Which are the colours seen on the screen? **Violet, Indigo, Blue, Green, Yellow, Orange, Red.**
- Which colour is seen nearer to the base of the prism? **Violet.**
- So, which colour deviates more? **Violet.**
- Which colour has least deviation? **Red.**
- What is the order of colours from the base? **Violet, Indigo, Blue, Green, Yellow, Orange, Red. (VIBGYOR)**
- This splitting of light is called? **Dispersion of light.**

Dispersion of light

➔ **Dispersion** is the phenomenon of **splitting up of a composite light** into its constituent colours.

➔ The **regular array of colours** formed by dispersion is the **visible spectrum.**

Activity 3

Wave length of different colours are given in the table.

Colour	Wavelength in (nanometer nm)
Violet (V)	400 - 440
Indigo (I)	440 - 460
Blue (B)	460 - 500
Green (G)	500 - 570
Yellow (Y)	570 - 590
Orange (O)	590 - 620
Red (R)	620 - 700

Discussion

- How many colours are there in the white light? **Seven.**
- Among these, which colour has shortest wavelength? **Violet.**
- Which one has the longest? **Red.**
- What about the others? **Their wavelengths are in between the violet and red.**
- Which colour deviates the most due to dispersion? **Violet.**
- Which colour deviates least? **Red.**
- When light passes through the prism, as the wavelength increases, how does the deviation change? Will it increase or decrease? **Decrease.**
- When wavelength decreases, how does the deviation change? **Deviation increases.**

Reason for dispersion

Light undergoes **refraction** when it enters the prism obliquely and when it comes out of the prism. **The extent of deviation** depends on the **wavelength**. Therefore waves **undergo deviation** at **different angles** and get separated. This is the reason for dispersion.

Assignment

White light passing through a prism splits up into its component colours. Explain how this happens?