

- II. 1) A 2) C 3) B 4) C 5) B
 6) A 7) D 8) B 9) A 10) C
 11) A 12) C 13) A 14) D 15) D

CHAPTER - 4

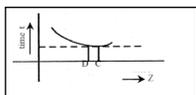
Acids, Bases and Salts

- I. 1. 1) If magnesium oxide reacts with H_2SO_4 , magnesium sulphate and water are formed.
 $MgO + H_2SO_4 \longrightarrow MgSO_4 + H_2O$
 2) From this we can say MgO is a base. This reaction is neutralisation reaction. Because of forming salt of magnesium and water.
 2. 1) In beaker A, acidic solution is there. So that the bulb glows due to H^+ ions present in acid solution.
 2) In beaker B, either alcohol or glucose might be there. Due to absence of H^+ ions, the bulb doesn't glow in beaker B.
 3. 1) While diluting, Suresh added water to conc. H_2SO_4 . Because of it, heat will generate. So that his skin has burned.
 2) To prevent this type of problems, conc. H_2SO_4 must always be added slowly to water with constant stirring.
 4. 1) It means that water has permanent hardness.
 2) To remove permanent hardness of water, we have to add washing soda (i.e.,) sodium carbonate.
- II. 1) A 2) C 3) A 4) C 5) A
 6) D 7) B 8) B 9) A 10) D
 11) A 12) B 13) C 14) B 15) A

CHAPTER - 5

Refraction of Light at Plane Surfaces

- I. 1. 1) It means the speed of light in that medium is 1.40^{th} part of speed of light in vacuum.
 2. 1) By using Snell's law, we know the relation between angle of incidence and angle of refraction.
 2) Snell's law is $n_1 \sin i = n_2 \sin r$.



3. 1) This is because total internal reflection.
 2) When the light rays pass through a water drop on the lotus leaf making some angle, they don't refract into air at certain angle.
 3) When angle of incidence is greater than critical angle of water, they reflect into water drop.
 4) Because of this phenomenon, water drop appears more shiny.
 4. 1) If telephone signals mixed with light waves, they simultaneously transmitted through a typical optical fibre.
 2) The signals transmitted in this way have much clarity than in other methods.

- II. 1) B 2) B 3) C 4) B 5) C
 6) B 7) A 8) C 9) A 10) B
 11) B 12) C 13) B 14) A 15) C

CHAPTER - 6

Refraction of Light at Curved Surfaces

- I. 1. 1) We can observe the size of the pen, which part of the pen is dipped in the water seem to be increased.
 2) Because, here the light ray is passing from air to water. So it undergoes refraction.
 2. 1) Any lens has two curved surfaces. Every curved surface of the sphere is a part of a sphere. It has two centres of curvature. Two radii of curvature also there.
 2) From these two focal points also be there.
 3. 1) Focal length of the convex lens (F) = 15 cm
 So the radii of curvature are $R_1 = 2F_1 = 2 \times 15 = 30$ cm, $R_2 = 30$ cm.
 2) If we put the object at centre of curvature, we get the image of it also at centre of curvature on the other side of same size.
 3) So, that the object distance = 30 cm
 Image distance = 30 cm.
 4. 1) It is not correct.
 2) As per sign conventions, focal length of a convex lens is +ve. \uparrow means it is a convex lens. So, it must be + 35cm.
- II. 1) B 2) A 3) A 4) C 5) C
 6) D 7) B 8) A 9) B 10) B
 11) C 12) C 13) D 14) B 15) B
 16) B 17) B 18) B 19) D 20) D
 21) C 22) D 23) C 24) B 25) D
 26) D

CHAPTER - 7

Human Eye and Colourful World

- I. 1. 1) When you enter a room with full of lights, iris makes the pupil contract in your eye.
 2) Thus excess light can't enter into your eye.
 2. 1) In our eye, ciliary muscles help the eye lens to change its focal length to reach minimum and maximum values.
 2) When we are seeing nearer objects, focal length of our eye reaches its minimum value and vice versa.
 3) Thus we can see nearer and distant objects.
 3. 1) Though it passes through prism, it doesn't split into other frequencies.
 2) Because the light ray from sodium lamp has only one frequency that is equal to yellow colour.
 3) Frequency of light change due to refraction.
 4. 1) As its refractive index is low, red colour suffers low deviation.
 2) So it seems to far distances.
 3) So from long distance driver of the train observe this colour and tries to stop the train.
- II. 1) A 2) C 3) D 4) B 5) B
 6) D 7) B 8) C 9) B 10) B
 11) A 12) C 13) B 14) A 15) A

