

**I. Diagram-Based Questions**

Q1: Draw and label the diagram of refraction of light passing from air into water. Label the angle of incidence, angle of refraction, and the normal.

Q2: Draw the ray diagram for formation of an image by a concave mirror when the object is placed beyond the focal point. Label the object, image, focal point, and principal axis.

**II. Very Short Answer Questions**

1. What is the speed of light in a vacuum?
2. Define the term "focal point" in a concave mirror.
3. What is the color of light with the shortest wavelength?
4. What is the angle of incidence in a plane mirror?

**III. Short Answer Questions**

1. What is the difference between regular reflection and diffuse reflection?
2. How does the refractive index affect the speed of light in a medium?
3. How does a convex lens differ from a concave lens in terms of image formation?
4. Explain why the sky appears blue during the day.

**IV. Long Answer Questions**

1. Explain how a plane mirror forms an image. Draw the ray diagram and explain the characteristics of the image formed.
2. Describe the process of dispersion of light and how a prism produces a spectrum. Include a diagram.

**V. Higher Order Thinking Skills**

1. A man is standing at a distance from a plane mirror and his image appears to be far away. If he moves closer to the mirror, what happens to the distance of his image? Explain the relationship between object distance and image distance in a plane mirror.
2. Two mirrors are placed together at an angle of  $60^\circ$  from each other. Find the number of images formed in this case.