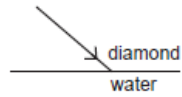


O P JINDAL SCHOOL, SAVITRINAGAR

ASSIGNMENT

CLASS X PHYSICS

-
- 91 What is understood by lateral displacement of light? Illustrate it with the help of a diagram. List any two factors on which the lateral displacement of a particular substance depends. 3
- 92 (a) Draw a ray diagram to show the path of a light ray passes from one medium to another if the two media are optically exactly the same.
(b) Absolute refractive indices of medium 'A' and medium 'B' are ' n_a ' and ' n_b ' respectively. What is the refractive index of medium 'B' with respect to medium 'A'. 3
(c) How does the velocity of light vary with change in the optical density of the media?
- 93 A coin is kept at the bottom of an empty bucket. A student standing near to it cannot see the coin. Another student pours some water into the bucket without disturbing the coin. Now, the first student is able to see the coin from the same position. Explain how it become possible to see the coin now? Draw a ray diagram to illustrate it. 3
- 94 (a) Differentiate between reflection and refraction.
(b) A lemon kept in water in a glass tumbler appears to be bigger than its actual size, when viewed from the sides. Explain why it so appears. 3
- 95 A ray of light is incident on the interface separating diamond and water. Given that refractive indices of diamond and water with respect to air are 2.42 and 1.33 respectively, complete the diagram by showing a refracted ray and mark the angles of incidence and refraction. 3



- 96 State the laws of refraction of light. If the speed of light in vacuum is 3×10^8 m/s, find the absolute refractive index of a medium in which light travels with a speed of 1.4×10^8 m/s. 3
- 97 An object of height 6 cm is placed perpendicular to the principal axis of a concave lens of focal length 5 cm. Use lens formula to determine the position, size and nature of the image if the distance of the object from the lens is 10 cm. 3
- 98 If the image formed by a lens for all positions of the object placed in front of it is always virtual, erect and diminished, state the type of the lens. Draw a ray diagram in support of your answer. If the numerical value of focal length of such a lens is 20 cm, find its power in new cartesian sign conventions. 3
- 99 An object of height 5 cm is placed perpendicular to the principal axis of a concave lens of focal length 10 cm. If the distance of the object from the optical centre of the lens is 20 cm, determine the position, nature and size of the image. 3
- 100 Draw a ray diagram to show the path of the refracted ray in each of the following cases: A ray of light incident on a concave lens is 3
- (i) passing through its optical centre.
 - (ii) parallel to its principal axis.
 - (iii) directed towards its principal focus.