DDS ACADEMY

Wave Theory of Light Numericals

1. The refractive indices of water and diamond are $\frac{4}{3}$ and 2.42 respectively. Find the speed of light in water and diamond. Hence find the refractive index of diamond with respect to water.

(Ans : 1.815)

2. Wavelength of light in water is 4000 AU and in glass is 2500 A^0. Find the refractive index of glass with respect to water. (Ans : ${}^{w}\mu_{g} = 1.6$)

3. Compare wavelength of light in glass and in water, if refractive index of glass and water relative to air are 3/2 and 4/3 respectively (Ans : $\frac{8}{9}$)

4. Velocity of light in diamand is 1.25×10^8 m/s. Find refractive index of diamond with respect to water
Given : Refractive index of water with respect to air is 1.33 (Ans : ${}^{w}\mu_{d} = 1.804$)

5. Wavelength of monochromatic light is $5000A^0$ in air. What will be wave no. in a medium of refractive index 1.5 (Ans : 3×10^6 wave/m)