CLASS 10

PHYSICS WORKSHEET

REFRACTIVE INDEX

NUMERICALS

1. The refractive index of medium 'X' with respect to medium 'Y' is 2/3 and refractive index of medium 'Y' with respect to medium 'Z' is 4/3. Find the refractive index of medium 'Z' with respect to medium 'X'.

2. The refractive index of water with respect to air is 4/3. What is the refractive index of air with respect to water?

3. The refractive index of glass with respect to air is 1.65 and that of water w.r.t air is 1.33. Calculate refractive index of water w.r.t to glass.

4. In an experiment with a glass slab, a student observed that a ray of light incident at an angle of 60°with the normal on one face of the slab, after refraction, strikes the opposite face of the slab before emerging out in air making an angle of 42°with the normal. Draw a labelled diagram to show the path of this ray. What would be the value of angle of refraction and angle of emergence?

5. Refractive index of water and benzene w.r.t air are 1.33 and 1.50 respectively. Calculate refractive index of benzene w.r.t water?

6. The absolute refractive index of 2 media 'A' and 'B' are 2.0 and 1.5 respectively. If the speed of light in medium 'B' is 2×10^8 m/s, calculate the speed of light in: (i) vacuum (ii) medium 'A'.

7. The absolute refractive index of glass and water are 4/3 and 3/2 respectively. If the speed of light in glass is 2×10^8 m/s, calculate the speed of light in: (i) vacuum   (ii) water.

8. If the angle of incidence (i) for a light ray in air be 45°and the angle of refraction (r) in glass be 30°, find the refractive index of glass w.r.t air.

9. Refractive index of air w.r.t is 1.33. What is the value of refractive index of air w.r.t water?