



e-Edge Education Centre, www.eeeclases.info

Time 1 Hr

Class-XII B

Subject -Physics

M.M -32

- 1 Explain the phenomenon of total internal reflection .What are the conditions for the total internal reflection ? [3]
- 2 Prove - $\mu_1/u + \mu_2/v = (\mu_2 - \mu_1)/R$. When refraction occurs from rare to denser medium at a (i) concave (ii) convex spherical refracting surface. All have usual meaning. [3]
- 3 Derive lens maker's formula for a thin a convex lens. [3]
- 4 Derive lens formula for a convex lens. [3]
5. The refractive index of the material of a concave lens is n_1 . It is immersed in a medium of refractive index n_2 . A parallel beam of light is incident on the lens. Trace the path of emergent rays when (i) $n_2 = n_1$ (ii) $n_2 > n_1$ (iii) $n_2 < n_1$. [3]
6. What is total reflection? Under what conditions does it take place? [3]
7. Draw a labeled ray diagram showing the formation of image of a distant object using an astronomical telescope in the near position. Derive Magnifying power for it? [3]
8. Draw a ray diagram to show how an image is formed by a compound microscope. On What factors will its magnifying power depend? [3]
9. Define wave front .Explain three types of wave front. [3]
10. State Huygens's principle and prove the (i) laws of reflection and (ii) law of refraction on the basis of wave theory. [5]