

1. Explain Huygens' wave theory. Verify the law of refraction for a spherical wavefront incident on a plane surface using Huygens' wave theory.
2. Explain Huygens' principle. Verify the law of reflection for a spherical wavefront incident on a plane surface using Huygens' wave theory.
3. What is interference of light? Mention the conditions required for constructive and destructive interference of light.
4. Discuss the effect of introducing a thin transparent plate in the path of the interfering beams in a biprism. Deduce an expression for the displacement of the fringes. Briefly explain how thin can be used to determine the thickness of a mica sheet.
5. What are the methods used to get coherent sources. Describe with theory the formation of bright and dark interference fringes in the light transmitted from a thin film.
6. What are Newton's rings? Show that the radii of the dark rings are in the ratio of square root of natural numbers. Why does the centre of Newton's ring pattern appear dark in reflected light?