



(SET-A)

BHARATI VIDYAPEETH COLLEGE OF ENGINEERING, NAVI MUMBAI - 400614.

INTERNAL THEORY EXAMINATION

Test I: FE Semester-II (2014-2015)

Time duration: 45 minutes.

MARKS: 15

APPLIED PHYSICS-II

Note: (i) Assume suitable data if necessary (ii) Figures to the right indicate full marks

- Q.1 Attempt any TWO 06
- a What will be the nature of Newton's rings interference pattern if white light is used?
 - b What is the nature of interference pattern obtained in wedge shaped air film? What is the order of the first fringe of the pattern?
 - c Why Newton's rings are circular? What would be the nature of interference pattern if convex lens is not in contact to plane glass plate?
 - d The system of Newton's rings observed by transmitted light is complementary to that observed by reflected light. Explain.
 - e Explain why the rings get closure away from center in Newton's ring experiment.
 - f Explain: (i) Principle of superposition of waves (ii) Thick film
- Q.2 Prove that the diameter of Newton's n^{th} dark ring is proportional to square root of natural number in reflected system. 05
- OR**
- Obtain the conditions of brightness and darkness of a thin transparent film of uniform thickness illuminated by monochromatic light and observed in reflected system.
- Q.3 In a Newton's rings experiment a planoconvex lens having a 3 m radius of curvature is placed on an optically flat glass plate and illuminated by monochromatic light. The diameter of the 8th bright ring in the reflected system is 72×10^{-4} m. Calculate the wavelength of light. 04
- OR**
- White light falls normally on a soap film of 4×10^{-7} m thickness. If the refractive index is 1.33 which wavelength in the visible range is reflected most strongly?