

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- SEPT. 2019

B.Tech. I Semester (CSE, ECE, IT, CE)

COURSE CODE: 18B11PH111

MAX. MARKS: 15

COURSE NAME: ENGINEERING PHYSICS-I

COURSE CREDITS: 04

MAX. TIME: 1 Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Attempt all the questions in sequence. Scientific calculator is allowed.

1. Calculate the displacement of fringes when a transparent thin film is introduced in the path of one of the interfering beams in biprism.
[marks 3, CO-1]
2. White light falls normally on a soap film whose thickness is 5×10^{-3} cm and $\mu = 1.33$. Which wavelength in the visible region will be extinct?
[marks 3, CO-2]
3. In Newton's ring experiment the wavelength of light used is 6×10^{-5} cm and the difference of square of diameters of successive rings is $0.125 \times 10^{-4} \text{ m}^2$. What will happen to this quantity if (a) the wavelength of light is changed to 4.5×10^{-4} cm? (b) The liquid of refractive index 1.33 is introduced between the lens and the glass plate? (c) The radius of curvature of convex surface of the plano-convex lens is doubled?
[marks 3, CO-2]
4. Describe Fraunhofer diffraction due to a single slit and deduce the positions of maximum and minimum. Draw the representative graph of intensity distribution.
[marks 3, CO-1]
5. The distance between the coherent sources is 0.3mm and the screen is 90cm from the sources. The second dark band is 0.3cm from central bright fringe. Find the wavelength and the distance of the 4th bright fringe from the central bright fringe.
[marks 3, CO-2]