

92033

**B.Sc. 3rd Semester (Hons) New Scheme
Examination, December-2015**

PHYSICS

Phy-303

Vibration and Wave Optics-I

Time allowed : 3 hours] [Maximum marks : 40

Note : Attempt five questions in all, selecting at least two questions from each unit. All questions carry equal marks.

Unit-I

1. What do you mean by Super Position of two harmonic waves ? How standing waves are produced on a string ? Discuss. 8
2. (a) What do you mean by free oscillations of a system with one degree of freedom ? 5
(b) Discuss Plane and Spherical waves. 3
3. Discuss Superposition of N Collinear harmonic oscillations. 8

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[P.T.O.]

4. Discuss normal modes of stretched strings. Also discuss plucked and struck strings waves. 8

Unit-II

5. Discuss Fabry-Perot interferometer in detail. 8

6. Describe Fresnel's biprism in detail. Explain how the wavelength of light can be determined with its help.

7. (a) Discuss Young's Double Slit experiment in detail and discuss the conditions of observing bright and dark fringes on the screen. 6

- (b) A biprism is placed 5 cm from a slit illuminated by sodium light $\lambda = 5890 \text{ \AA}$. The width of fringes obtained on a screen 75 cm from the biprism is 9.424×10^{-2} cm. What is distance between two coherent sources ? 2

8. Discuss how would you determine wavelength of light using Lloyd's mirror experiment. In what respect do the fringes in this case differ from those obtained with Fresnel's biprism. 8