

**Raiganj Surendranath Mahavidyalaya**

**Department of Physics**

**CBCS B.Sc PHYSICS Honours**

**2nd Semester, Internal Examination 2020**

**DC 4: Waves and Optics**

**Full Marks: 10**

**Date: 28-12-2020**

**Time: 1 hour**

**Answer any Two questions:**

**2 x 5 = 10**

1. (a) What are Lissajous figures? Distinguish between gravity waves and ripples. 3
- (b) A beam of monochromatic light of wavelength  $5820 \text{ \AA}$  falls normally on a glass wedge with the wedge angle of 20 seconds of an arc. If the refractive index is 1.5, Find the fringe spacing. 2
2. (a) What are quality factor or Q -value and relaxation time of damped vibration? Establish the relation among them. 3
- (b) Show that in two dimensions the shape of the fringes is hyperbolic. 2
3. (a) Why are light waves from two different tubes not seen to interfere ? 2
- (b) A plano-convex lens of radius 300cm is placed on an optically flat glass plate and is illuminated by monochromatic light. The diameter of the 8 th dark ring in the transmitted system is 0.72cm. Calculate the wavelength of light used. 3