4th Semester (B.Sc.-G) Final Internal Examination-2020
Department of Physics
Prabhat Kumar College, Contai
Paper-DSC-1D (Wave and Optics)

Group-A (Theory)
(Answer any one of the following)

1) Discuss Lissajous Figures with equal and unequal frequencies and their uses

2) Deduce the wave equation for the transverse wave motion along a stretched string. Find the solution of the wave equation when the string is fixed at both ends and find expression of fundamental frequency and eigen frequencies.

3) What do you mean by viscosity? Discuss about the laminar flow. Derive the Poiseuille's formula of viscosity for flow of a liquid through a capillary tube.

4) Discuss working principle of diffusion pumps to create vacuum and how do you measure the level of vacuum

5) (a) Discuss the condition for sustained interference of light. (b) Describe Young's double slit experiment to produce interference pattern due to a monochromatic source of light. Deduce the expression for the fringe width. (c) The ratio of the intensities at minima to the maxima in the Young's double slit experiment is 9:25. Find the ratio of the widths of the two slits

6) Discuss the polarization of light. How do you produce and analysis plane polarized light? Discuss some application of polarization of light.

Group-B (Practical)
(Answer any one of the following)

1) Discuss Schuster`s focussing and describe how you could determine the angle of prism using a prism spectrometer.
2) Discuss how can you determine dispersive power of the material of a given prism using mercury light
3) Discuss the theory of Newton's Rings experiment and mention the procedure to determine wavelength of sodium light using Newton's Rings.
4) How do you determine the resolving power of a plane diffraction Grating?
5) Discuss the procedure for determination of the coefficient of viscosity of water by capillary flow method (Poiseuille's method).
6) What do you mean by Cauchy Constants? Discuss how you could determine the value of Cauchy Constants of a material of a prism.

Answer script submitted to guchhait.asim@gmail.com