Assignment

PHYSICS (General)

Paper: 401

Full Marks : 40

Time : 3 hours

Submission date: 10/08/2020

(**Optics**)

1. Answer the following questions: 1×6=6

(a) What are the reasons to believe that light is a wave motion?

(b) Which type of wave show the property of polarization?

(c) What will be the shape of the wavefront of light coming from the point source placed at infinity?

(d) What is the full form of LASER?

(e) What is the polarizing angle of a medium of refractive index 1.732?

(f) State the essential condition for diffraction of light to occur.

2. Answer the following questions: 2×2=4

(a) Distinguish between Fresnel and Fraunhoffer class of diffraction?

(b) What is spontaneous emission of light?

3. Answer any *two* questions of the following: 5×2=10

(a) Write about the construction and use of Nicol prism. 5

(b) What is meant by chromatic aberration of a lens? State the condition of achromatism of two lenses in contact. 5

(c) Establish the laws of refraction using Fermats' principle. 5

4. Distinguish between resolving power and dispersive power of a grating. Obtain an expression for the resolving power of a plane diffraction grating. What is angular dispersion of grating? Write two main differences between Ramsden's eyepiece and Huygen's eyepiece. 2+4+2+2=10

5. Write short notes on any *two* of the following: 5×2=10

(a) Babinet's compensator

(b) Ruby Laser

(c) Half-shade polarimeter

(d) Aplantic foci

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N.B. – Mention your class roll no. and GU roll no. at the answer script properly. Upload the pdf version of answer script at the web portal adjacent to the view bottom of respective paper.