

Exam. Code : 103203

Subject Code : 1304

B.A./B.Sc. 3rd Semester

PHYSICS

Paper—B (Optics and Lasers)

Time Allowed—3 Hours] [Maximum Marks—35

Note :— Attempt any FIVE questions. Selecting at least ONE question each from Sections A, B, C and D. FIFTH question may be attempted from any sections. All questions carry equal marks.

SECTION—A

- 1. Discuss analytically the phenomenon of interference of light. Hence obtain the conditions required for sustained interference. 7
- 2. What are Newton rings ? Explain the formation of dark and bright fringes. 7

SECTION—B

- 3. Explain how a zone plate forms the image of an object and show that it acts as a converging lens. 7
- 4. Explain Rayleigh criterion of resolution. What is limit of resolution and resolving power ? Derive an expression for resolving power of a telescope. 7

SECTION—C

- 5. (a) What is polarisation of light ? Explain the phenomenon of polarisation on reflection. 5
- (b) The polarising angle for a certain medium is  $\frac{\pi}{4}$ . Find the refractive index of the medium. 2
- 6. What is a quarter wave plate ? How would you distinguish plane polarised and elliptically polarised light. 7

SECTION—D

- 7. What is the difference between Stimulated emission and Spontaneous emission ? Explain how population inversion is responsible for laser action. 7
- 8. Give detailed information for construction, energy level scheme and mode of working of He-Ne laser. 7

https://www.gnduonline.com

Whatsapp @ 9300930012

Send your old paper & get 10/-

अपने पुराने पेपर्स भेजे और 10 रुपये पावें,

Paytm or Google Pay से