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VA—38—2024

FACULTY OF SCIENCE

B.Sc. (Second Year) (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

(CBCS/New Pattern)

PHYSICS

Paper—VIII

(Optics and Lasers)

(Friday, 6-12-2024)

Time : 2.00 p.m. to 4.00 p.m.

Time—2 Hours

Maximum Marks—40

- N.B. :-** (i) Attempt *all* questions.
(ii) Log table is allowed.

1. Calculate the equivalent focal length of two thin co-axial lenses separated by a finite distance. 15

Or

- (a) How will you determine the wavelength of light by Newton's rings ? 8
- (b) Explain the Fraunhofer's diffraction produced due to single slit for monochromatic light. 7

P.T.O.

2. Describe a nicol prism and show how it can be used as an analyser. 15

Or

(a) Explain population inversion in lasers. 7

(b) Explain different properties of lasers. 8

3. Write short notes on (any two) : 10

(a) Cardinal points of an optical system.

(b) Brewster's Law.

(c) Rayleigh criterion for resolution.

(d) He-Ne Laser.