NA—38—2023

FACULTY OF SCIENCE

B.Sc. (Fourth Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(CBCS/New Pattern)

PHYSICS

Paper-VIII

(Optics and Laser)

(Saturday, 9-12-2023)   **Time : 2.00 p.m. to 4.00 p.m.**

Time—2 Hours   *Maximum Marks*—40

N.B. :—   (i)   *All* questions are compulsory

1. Explain Ramsden Eyepiece and their cardinal points   15

Or

(a) Explain Fraunhofer's diffraction due to single slit.   8

(b) Describe in detail Michelson interferometer   7

2. State and explain Brewster's law and explain Huygen's explanation of double refraction in unaxial crystals.   15

Or

(a) Explain the following terms in detail :   8

   (i) Spontaneous emission

   (ii) Stimulated emission.

(b) Explain with diagram He-Ne laser.   7

P.T.O.

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

    (*a*)   Huygen's eyepiece

    (*b*)   Rayleigh criterion

    (*c*)   Nicol prism

    (d)   Population Inversion.