Graphic Era
HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

Term Evaluation (Even) Semester Examination March 2025

Roll no.....

Name of the Course: B.Tech.
Semester: II
Name of the Paper: Engineering Physics
Paper Code: TPH-201
Time: 1.5 hour **Maximum Marks: 50**

Note:
(i) Answer all the questions by choosing any one of the sub-questions
(ii) Each question carries 10 marks.

Q1. CO-1(10 Marks)
a. Calculate the separation between two consecutive bright or dark fringes in Young's double slit experiment.

OR

b. Determine the resultant path difference in the interference through a thin wedge-shaped film.

Q2. **CO-1** (10 Marks)
a. Calculate the diameter of the third and fourth dark Newton's ring for the incident wavelength 5000 Å and the radius of curvature of a convex lens is 100 cm.

OR

b. Discuss any method to determine the distance between two virtual sources in Fresnel's bi-prism experiment.

Q3. **CO-1**(10 Marks)
a. Describe the diffraction due to Grating with the condition of maxima and minima.

OR

b. Light of wavelength 4500 Å falls normally on a slit of width 20 × 10-5 cm. Determine the angular position of the first two minima on either side of the central maximum.

Q4. **CO-2** (10 Marks)
a. Calculate the thickness of a doubly refracting crystal (DRC) required introducing a path difference of $\lambda/2$ between the ordinary and extraordinary rays. Given - $\lambda = 6000$ Å, $\mu_o = 1.56$ and $\mu_e = 1.40$.

OR

b. Define the specific rotation. Explain the working of Laurent's half-shade polarimeter.

Q5. **CO-2** (10 Marks)
a. Discuss the theory of production and detection of circularly polarized light.

OR

b. Calculate the specific rotation that rotates the plane of polarization 16^0 in a 25 % sugar solution of 28 cm length.