JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-I Semester (CSE/IT/ECE/CE)

COURSE CODE (CREDITS): PHYSICS-1 (04) **MAX. MARKS: 15**

COURSE NAME: 25B11PH111

COURSE INSTRUCTORS: PBB, SKK, VSA, SKT, SBA, HSR, HAZ **MAX. TIME: 1 Hour**

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	Using the expression for path difference in Young's double-slit experiment, calculate an expression for fringe width.	1	2
Q2	Calculate the displacement of the fringes on introducing a thin transparent film in the path of one of the interfering beams.	2	3
Q3.	In an interference pattern, at a point we observe 12th order maximum for $\lambda_1 = 600$ nm. What order will be visible here if the source is replaced by a light of wavelength 480 nm.	3	2
Q4.	Newton's rings are observed normally in reflected light of wavelength 600 nm. The diameter of 10th dark ring is 0.50 cm. Find the radius of curvature of the lens and the thickness of the film.	3	2
Q5	Two optically plane glass strips of length 10 cm are placed one over the other. A thin foil of thickness 0.010 mm is introduced between the plates at one end to form an air film. If the light used has a wavelength of 590 nm, find the separation between consecutive bright fringes.	3	2
Q6	(a) Newton's rings are formed by a planoconvex lens of diameter 2 m and a planoconcave lens of radius 1 m. Comment on the observed pattern in the reflected mode.	4	1
	(b) In an interference experiment, what will happen if D (distance between slit and screen) is comparable to wavelength?	4	1
Q7	Calculate the width of the secondary maximum for Fraunhofer's single-slit diffraction pattern.	2	2