JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-I Semester (BT/BI)

COURSE CODE (CREDITS): 25B11PH112 (04) MAX. MARKS: 15

COURSE NAME: Basic Engineering Physics

COURSE INSTRUCTORS: Ragini Raj Singh 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

(c) Students are allowed to use calculators

Q.No	Question	CO	Marks
Q1	Explain all the important wave properties with necessary diagram and equations.	1	3
Q2	Derive the interference term with reference to theory of interference, Also discuss intensity variation when $\delta=0^o$, $\delta=180^o$ and $0^o \leq \delta \leq 180^o$.	1	3
Q3	How to perform Newton's ring experiment to find refractive index of given liquid? Also, derive the necessary equation for the same.	1	3
Q4	In an interference pattern the amplitude of intensity is found to be 7.5 % of the average intensity. Calculate the relative intensities of the interfering sources.	1	3
Q5	A monochromatic light of wavelength 6000 Å is incident on two slits separated by a distance equal to 6×10^{-4} m. The interference pattern is seen on a screen placed at a distance of 1.2 m from the slits. A thin glass plate of thickness 1.6×10^{-6} m and refractive index $\mu = 1.6$ is placed between one of the slits and the screen. Find the intensity at the centre of the screen. Also, find the lateral shift of the central maximum.	2	3