JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Make-up Examination-Nov-2025

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

COURSE NAME: Basic Engineering Physics

COURSE INSTRUCTORS: Dr. Ragini Raj Singh MAX. TIME: 1 Hour 30 Minutes

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Note: *(a) All questions are compulsory.*
(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems
(c) calculators are allowed

Q.No	Question	CO	Marks
Q.1.	How to determine the wedge angle; derive the formula and explain with the help of proper diagram? Why the fringe at apex is dark in the wedge shaped film?	1	3
Q.2.	How to determine the wavelength of light and refractive index of liquid using Newton's ring experimental setup, derive the required equations and explain how to perform the experiment?	1	3
Q.3.	What is the difference between single slit and double slit diffraction? Find out the equations for missing orders in case of double diffraction grating for a=b, 2a=b and b=0.	1	3
Q.4.	For N-slit diffraction grating what is the dispersive and resolving powers. Discuss and write the equations with proper explanation.	2	3
Q.5.	What is polarization of light? Discuss polarization by reflection and derive Brewster's law. Explain why light reflected at Brewster's angle is perfectly plane-polarized.	2	2
Q.6.	In Newton's ring experiment what will be the order of the dark ring which will have double the diameter of that of 15^{th} dark ring. The wavelength of the light used is 500 nm.	2	1.5
Q.7.	A Newton's ring experiment performed with the source of light having two wavelengths λ_1 = 600 nm and λ_2 = 500 nm. It is found that the n^{th} dark ring due to λ_1 coincides with $(n+1)^{th}$ dark ring due to λ_2. If the radius of curvature of the plano convex lens is 100 cm, find the diameter of the nth dark ring for λ_1.	2	2.5
Q.8.	Light of wavelength 500 nm falls normally on a thin wedge shaped film of refractive index 1.6 forming fringes that are 3 mm apart. Find the angle of the wedge.	3	2
Q.9.	Light of wavelength 600 nm falls normally on a plane transmission grating having 20,000 lines in 4 cm, find the angle of diffraction for maximum intensity in 2^{nd} order.	3	2.5
Q.10.	A grating has 8000 lines per cm drawn on it. If its width is 8 cm. Compute the following: (i) The resolving power in 2^{nd} order. (ii) The smallest wavelength that can be resolved in the third order in 600 nm region.	3	2.5

(52)