Mid Term Examination- Oct.2023

Engineering Physics (PHYS132)

Time: 01Hr **Maximum Marks:20**

Note: The use of scientific calculator is allowed.

Section -- A (Attempt any two questions, Each of 04 marks)

Q.1 What is meant by resolving power of a plane transmission grating? Derive an expression for it. Show that the maximum resolving power is proportional to the width of the grating.

Q.2 Newton's rings are observed normally in reflected light of wavelength 5893 Å. The diameter of the 10th dark ring is 0.005m. Find the radius of curvature of the lens and the thickness of the film. n D $D^2 = 4nR\lambda$

Q.3 Describe how a Nicol prism can be used as polarizer and analyser.

Section -- B (Attempt any One question, 8 marks)

Q.1 Discuss the phenomenon of interference of light due to thin films and find the condition of maxima and minima in transmitted light.

Q.2 Discuss the phenomenon of diffraction due to plane diffraction grating and show that when N increases, the intensity of secondary maxima decreases.

Section – C (Compulsory, 04 marks)

Q.1

White light is incident on two parallel glass plates separated by an air film of 0.001cm thickness and the reflected light is examined by the spectroscope. Find the number of dark bands seen in the spectrum between the wavelength 4×10^{-5} cm and 7×10^{-5} cm when light is incident at an angle of 30^0 to the normal to surfaces.