

## JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- SEPTEMBER 2018

B.Tech. I Semester [CSE,ECE, IT, CE]

COURSE CODE: 18B11PH111

MAX. MARKS:15

COURSE NAME: ENGINEERING PHYSICS – I

COURSE CREDITS: 4

MAX. TIME: 1 Hr

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Scientific calculator is allowed.*

- Q1. (a) Find an expression for fringe width in case of Young's double slit experiment. [3 marks]  
[CO-1]
- (b) Two narrow and parallel slits  $0.2 \text{ cm}$  apart are illuminated with monochromatic light of wavelength  $589.3 \text{ nm}$ . Interference pattern is observed on a screen placed at a distance of  $1 \text{ m}$  from the slits. Calculate the fringe width. [1 mark]  
[CO-2]
- Q2. (a) Describe briefly how the wavelength of monochromatic source can be determined with the help of Fresnel's biprism. [2 marks]  
[CO-1]
- (b) The distance between two virtual sources of a slit formed by a biprism is  $0.3 \text{ mm}$ . If the fringes of width  $0.59 \text{ mm}$  are formed on a screen placed at a distance of  $30 \text{ cm}$ , from the slit calculate the wavelength of light. [2 marks]  
[CO-2]
- Q3. (a) Derive the conditions for maxima and minima for parallel plane thin film in reflected light. [2 marks]  
[CO-1]
- (b) Discuss the application of Newton's rings to find out the wavelength of monochromatic light used. [2 marks]  
[CO-1]
- Q4. Differentiate between Fresnel and Fraunhofer classes of diffraction. Derive the condition for the production of maxima and minima in a single slit Fraunhofer diffraction. [3 marks]  
[CO-1]