

2nd Se,
2017

Roll No-

B.Tech Food Technology
I Semester Examination 2017
Course Code -BFTC-103
Course Title -Applied Physics

2nd cos 90

Time: 3 hours

Max. Marks:70

Note: 1. It is compulsory to answer all the questions of Section - A.
2. Answer any four questions in Section - B

CN
FN

Section-A (5 × 6 = 30)

- Q1. (a) Write down the statement of the Superposition Principle. 3M
(b) Consider a sinusoidal function $y = x_0 \sin(5t + 2)$ where t is in seconds. calculate its frequency? 3M
- Q2. Enumerate the differences between interference and diffraction phenomenon. 6M
- Q3. Describe and deduce the condition for maxima and minima in thin film interference pattern. 6M
- Q4. What is a damped harmonic oscillator. Set up a differential equation and describe its solution in overdamping, critical damping and underdamping conditions. 6M
- Q5. Write down the postulates of Special Relativity. Show that Newtons force law is consistent with Galileon transformations. 6M.

Section-B (4 × 10 = 40)

- Q1. Describe Young's double slit experiment and find the width of fringes so formed. 10M
- Q2. Write down the Lorentz transformation equations for the coordinates of two inertial frames in relative motion and hence deduce relations for time dilation and length contraction. 10M
- Q3. Describe the principle and working of He-Ne laser. 10M
- Q4. Derive an expression for the wavelength in the Newtons Rings experiment. 10M
- Q5. What do you understand by polarization of light waves. Describe linear, elliptical and circular polarization. 10M
- Q6. Derive an expression for the intensity distribution in a single slit diffraction pattern. 10M