16011(D)

B. Tech **1st Semester Examination**

Engineering Physics (CBS)

PH-101

Time : 3 Hours   **Max. Marks : 60**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued

Note : Attempt five questions selecting one question from each Unit. Q. 9 is compulsory.

UNIT - I

1   What is the difference between spontaneous and stimulated emission? Describe the working of Ruby laser. (12)

2   What is Lorentz Transformation for the velocity of a particle? Apply Lorentz transformation to derive expressions for length contraction and time dilation. (12)

UNIT - II

3.   What is simple harmonic motion? Write the expression for total energy of simple harmonic oscillator in terms of spring factor K and amplitude A. (12)

4   Discuss the propagation of light wave through an optical fiber. Explain the different types of optical fibers and their applications. (12)

UNIT - III

5   Derive time dependent one dimensional Schrodinger equation for a non-relativistic free particle. Explain uncertainty principle.