H.T.No. | | | | | | | | | | |

Code No: PH1501 **GEC-R14**

I B. Tech I Semester Reg./Suppl. Examinations, December 2016

ENGINEERING PHYSICS

(Common to Civil Engineering, Electrical and Electronics Engineering and Mechanical Engineering)

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

Note: All Questions from **PART- A** are to be answered at one place.
Answer any **FOUR** questions from **PART - B.** All Questions carry equal Marks.

PART-A

6 × 2 = 12M

1. Differentiate interference and diffraction.
2. Differentiate step index and graded index fibers.
3. What is primitive cell?
4. Obtain the relation between relative permeability and magnetic susceptibility.
5. Write the expressions for drift and diffusion currents in a semiconductor.
6. Define de Broglie Hypothesis.

PART-B

4 ×12 = 48M

1. Derive the expressions for maxima and minima due to interference of reflected light in the thin transparent film of uniform thickness. (12M)
2. Differentiate spontaneous and stimulated emission of radiation. Describe the construction and working of He-Ne laser. (12M)
3. What are miller indices? Draw the principal plane (111) in a simple cubic crystal. Deduce Bragg's law of X-ray diffraction in crystals. (12M)
4. Explain BCS theory. Distinguish between type – I and type – II superconductors. (12M)
5. What is an intrinsic semiconductor? Obtain the expression for the concentration of electrons in the conduction band of a semiconductor? (12M)
6. What are matter waves? Assuming the time independent Schrodinger's wave equation, discuss the solution for a particle in a one-dimensional potential well of infinite height. (12M)

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