**Set No : 1**

**Sreenidhi Institute of Science & Technology**

**A 12**

(An Autonomous Institution)

**Code No: 121PH02**

**B. TECH. I – Year II – Semester Examinations, July, 2014 (Regular)**

**ENGINEERING PHYSICS – II (Common to EEE, CSE and IT)**

**Time: 3 Hours Max. Marks: 70**

**Note: No additional answer sheets will be provided.**

**Part-A**

**Max.Marks:20**

**Answer all QUESTIONS.**

1. Show the Fermi level in case of intrinsic semiconductors with the help of band diagram.
2. Sketch the energy diagram of PN junction diode.
3. What is electric susceptibility?
4. What is the origin of magnetic moment?
5. Distinguish between spontaneous and stimulated emission of radiation.
6. What is quantum confinement?
7. What is Hall effect?
8. What are the ferri magnetic materials?
9. What is Numerical aperture and acceptance angle?
10. What is piezo-electricity?

**Part – B**

**Max. Marks: 50**

**ANSWER ANY FIVE QUESTIONS. EACH QUESTION CARRIES 10 MARKS.**

1. Derive the expressions for the charge carrier concentrations in intrinsic semiconductors.

2. a) Explain the I-V characteristics of PN junction diode. (6)

b) Write a short note on LED (4)

3. a) Explain different types of dielectric polarizations (4)

b) Derive the expression for the ionic polarizability. (6)

4. a) Explain the Hysteresis curve based on domain theory (5)

b) Explain the general properties of superconductivity (5)

5. a) Explain the construction and working of Ruby laser. (6)

b) Discuss about the attenuation in optical fibers in detail. (4)

6. a) Explain the Sol-gel method to prepare nanomaterials. (5)

b) Explain TEM with a block diagram. (5)

7. a) Explain the ferro-electricity and write the applications of ferroelectric materials. (5)

b) Explain direct and indirect band gap semiconductors (5)

8. a) What are Einstein’s coefficients? Deduce the relationship between them. (6)

b) What is nano scale? Explain how the surface to volume ratio changes in nano materials. (4)

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