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Code No.: 21602

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**  
**B.E. II Year I – Semester (Main) Examinations, December – 2015**

**Bridge Course : Physics of Materials**

Time: 1 1/2 hours

Max. Marks: 25

*Note: Answer ALL questions in Part-A and any TWO questions from Part-B*

**Part-A (5 X 1=5 Marks)**

1. In case of Ferri magnetic material the magnetic dipoles are aligned \_\_\_\_\_ and have \_\_\_\_\_ magnitude.
2. The relation between P and E in case of Ferro Electric materials is \_\_\_\_\_
3. In intrinsic semiconductor the Fermi level lies [ ]
  - a) Midway between valence and conduction band
  - b) Close to conduction band
  - c) Close to valence band
  - d) none
4. Mention few applications of CNT's.
5. Mention any two differences between soft and hard magnetic materials.

**Part-B (2 X 10=20 Marks)**  
**(All bits carry equal marks)**

6.
  - a) What are the properties of Ferro Electric materials? Mention few applications.
  - b) Explain domain theory of ferromagnetism and discuss how B varies with H.
7.
  - a) Explain working principle of solar cell and mention few applications.
  - b) What are the basic properties of Nano materials?
8.
  - a) Define electron polarisation and derive an expression for electronic polarizability.
  - b) Distinguish between Bulk, Thin and Nano materials.

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