Total No. of Questions :5] *[Total No. of Printed Pages :2*

Roll No .....

EX - 402

B.E. IV Semester

Examination, June 2014

Electrical and Electronics Materials

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Classify the solids from electrical engineering point of view. 2

   b) Write the electrical and mechanical properties of the material to be use as overhead transmission, also name the materials used. 2

   c) Write the definition, formula and unit of 'coefficient of thermal conductivity'. 3

   d) Explain superconductivity of materials. Give its types also. 7

   OR

   Write a note on fuel cell. 7

Unit - II

2. a) What is dissipation factor. Give the formula to calculate it. 2

   b) List the factors affecting the dielectric strength of the material. 2

   c) Write the phenomenon of charging and discharging of a dielectric. 3

   d) Write the applications of following insulating materials in electrical industries.
   i) Bakelite ii) PVC
   iii) Paper iv) Glass
   v) Insulation varnish 7

   OR

   What is the purpose of using oil in a transformer. How its dielectric strength test is measured in the lab. 7

Unit - III

3. a) How semiconductors works. Give the application of semiconductors. 2

   b) What is thermally sensitive resistor is called. Give its special feature and applications. 2

   c) Compare the operation of germanium or silicon as rectifier. 3

   d) Describe the working of Hall effect generator. 7

   OR

   What are the special features of 7
   i) Photo diodes ii) Avalanche photo diode and
   iii) Photo transistor

Unit - IV

4. a) Write the difference between Dia, Para and Ferro magnetism. 2

   b) Write the properties of phosphorescent materials and its applications. 2

   c) Explain Hysteresis and magnetostriction. 3

   d) State the effects of impurities on the properties of magnetic material. 7

   OR

   Compare soft and hard magnetic materials. 7

Unit - V

5. a) Explain term monolithic integrated circuit. 2

   b) Describe the CMOS technology. 2

   c) Explain planner technology of I-C fabrication. 3

   d) Write a note on I-C packaging. 7

   OR

   Write the characteristics of I-C components. 7

