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

Roll No .....

EX-402

B.E. IV Semester

Examination, June 2016

Electrical and Electronics Material

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) Explain the essential properties of steel.
   b) Mention commonly used good conducting materials.
   c) What is super conductivity? Explain Silsbee effect.
   d) Explain the properties and used the following conducting materials
      i) Tin ii) Silver iii) Molybdenum

OR

Discuss MHD generator giving greater emphasis on the material used in it.

Unit - II

2. a) Give classification of insulators.
   b) What is dissipation factor? Give the formula to calculate it.
   c) Explain molecular theory of polarization.
   d) What are the factors that affect the insulation of transformer oil?

OR

Explain the electrical, mechanical and thermal properties of Bakelite, Paper, Glass.

Unit - III

3. a) Draw the figure for P-Type and N-Type semiconductor.
   b) Enlist the various type of semiconductor material.
   c) Compare the operation of germanium or silicon as rectifier.
   d) What is Hall effect? How will you determine carrier density with the help of Hall coefficient?

OR

Explain the function and application of semiconductors.

Unit - IV

4. a) Classify the magnetic material with example.
   b) What is B-H curve?
   c) Which are the permanent and high permeability magnetic materials?
   d) Describe soft magnetic and hard magnetic materials using B-H curve and give their applications.

OR

Describe following special purpose magnetic materials characteristics. Thermocouple Fluorescent and Phosphorescent.

Unit - V

5. a) Explain term monolithic integrated circuit.
   b) Explain BJT with basic structure and symbol.
   c) Explain IC resistors and IC capacitors.
   d) Explain hybrid IC technology.

OR

Define and explain the FET parameters and establish the relation between them.

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