

S.B.Roll No.....

**ELECTRICAL AND ELECTRONICS ENGINEERING MATERIALS**

**3<sup>rd</sup> EXAM/EE/EEE/0521/0052/6900/May'15**

**Duration:3hrs**

**Max.Marks:75**

**Section-A**

**Q1. Fill in the blanks:**

**15x1=15**

- i) In insulators conduction band is \_\_\_\_\_.
- ii) Resistivity is also called \_\_\_\_\_.
- iii) \_\_\_\_\_ has zero resistance.
- iv) In p-type semiconductor, the minority carriers are \_\_\_\_\_.
- v) PVC is abbreviation used for \_\_\_\_\_.
- vi) \_\_\_\_\_ materials can be made magnets easily.
- vii) \_\_\_\_\_ is an alloy of iron, cobalt and chromium.
- viii) Bimetallic strips are also called \_\_\_\_\_.
- ix) To protect electric circuits against \_\_\_\_\_ fuse is provided.
- x) The core of transformer is always \_\_\_\_\_.
- xi) Nichrome is an alloy of \_\_\_\_\_ and chromium.
- xii) Resistivity of a semiconductors lies \_\_\_\_\_ conductors and insulator.
- xiii) Neoprene rubber is also called \_\_\_\_\_.
- xiv) Transformer bushing are made up of \_\_\_\_\_.
- xv) The content of carbon in tungsten steel is \_\_\_\_\_.

**Section-B**

**Q2 Attempt any five questions**

**5x6=30**

- i) Classify the materials on the basis of their energy bands.
- ii) Resistance of a conductor is directly proportional to length of conductor, why?
- iii) Explain with diagram intrinsic and extrinsic semiconductors.
- iv) Discuss the various important electrical properties of insulating materials.
- v) What do you mean by impregnation? Which materials are mostly used for impregnating the insulating materials?
- vi) Hard magnetic materials are used to make permanent magnets, why?
- vii) Brushes in dc machine are made up of carbon. Why?

**Section-C**

**Q3. Attempt any three questions**

**3x10=30**

- i) a). What do mean by resistance? State various factors effecting resistance of materials.  
b). Explain the properties of high resistivity conducting materials.
- ii) Explain in detail, various types of varnishes and their uses.
- iii) Explain in detail, various properties of magnetic materials.
- iv) Write a note on construction, working and application of bimetals.
- v) Write short note on  
a) Mica    b) Paper    c). Glass    d) Bakelite