

B.Tech Degree VI Semester Examination April 2011

EE 602 ELECTRICAL MATERIAL SCIENCES (2002 Scheme)

Time : 3 Hours

Maximum Marks : 100

- I. Write a short note on :
- (i) Amorphous semiconductor
 - (ii) Organic semiconductor
 - (iii) Fabrication of pnp junctions
 - (iv) Solder material
- (20)
- OR**
- II. (a) Discuss the properties and specifications of wire and cable materials. (15)
(b) Discuss the variation of conductivity with temperature. (5)
- III. (a) Explain Claussiac – Mosotti relation. (10)
(b) Explain the main features of ferro electricity. (10)
- OR**
- IV. (a) Briefly explain dipolar relaxation. (10)
(b) Derive an expression for electronic polarization in monoatomic gases. (10)
- V. (a) Explain the classification of insulating materials on temperature basis. Give one example for each class. (10)
(b) What are the factors influencing the dielectric strength of capacitor materials? (10)
- OR**
- VI. Explain the mechanism of Dielectric break down in (i) solids (ii) liquids. (20)
- VII. (a) Explain the Langevin's theories of dia and paramagnetism. (15)
(b) Explain Corie – Weiss law. (5)
- OR**
- VIII. (a) Write a short note on Hard and Soft magnetic materials. (10)
(b) Write a brief technical note on ferromagnetism. (10)
- IX. (a) What is super conductivity? What are its applications? (10)
(b) Explain photo thermal conversions. (10)
- OR**
- X. (a) Explain different types of fuses used and discuss about the properties of materials used as fusing elements. (10)
(b) Explain photo voltaic conversions. (10)