

**DIPLOMA IN ELECTRICAL ENGINEERING
(DELVI)****Term-End Examination****December, 2013****OIEE-002 : ELECTRICAL ENGINEERING
MATERIAL***Time : 2 hours**Maximum Marks : 70*

Note : Question No.1 is compulsory. Attempt any four questions from question no. 2 to question no. 8.

1. (a) The transition from the superconducting state to conducting state is reversible. (Yes/No) **2x7=14**
- (b) Dielectrics have free electrons. (Yes/No)
- (c) All organic substances are diamagnetic. (Yes/No)
- (d) Hydrogen bonds are stronger than Helium. (Yes/No)
- (e) The unit of magnetic field density is _____.
- (f) Resistance of insulators should be low. (Yes/No)
- (g) Abrupt drop of resistivity of some metals are called _____.
2. (a) State and explain Ohm's Law for conductive material. **7**
- (b) Explain the phenomenon of superconductivity in metals. **7**

3. (a) What do you mean by Energy levels ? 7
(b) What are the factors affecting electrical resistance of the material ? 7
4. (a) What is polarization ? Explain its mechanism for dielectric material. 7
(b) Explain the Bubble theory for liquid dielectric material. 7
5. (a) Describe the phenomenon of breakdown due to liquid globules. 7
(b) Define the term dielectric strength and breakdown voltage. 7
6. (a) What are the effects of moisture on insulating materials ? 7
(b) Describe the properties and uses of any two solid insulating material. 7
7. (a) Explain the following terms for magnetic materials: 7
(i) Permeability
(ii) Magnetomotive force
(iii) Magnetic Hysteresis
(b) What is magnetostriction ? Explain with neat diagrams. 7
8. Write short notes on any four of the following :
(a) Paramagnetism 3.5x4=14
(b) Electric scattering
(c) Dielectric properties of monatomic gases
(d) Ionic polarization
(e) Use of insulating material on conductors
(f) Magnetic resonance