

**DIPLOMA IN ELECTRICAL ENGINEERING  
(DELVI)**

00194

**Term-End Examination**

**June, 2014**

**OIEE-002 : ELECTRICAL ENGINEERING MATERIAL**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** Question no. 1 is compulsory. Attempt any **four** out of question 2 to question 8.

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1. (a) Insulators have more than 3 eV of energy gaps. (True/False)
- (b) The resistance of metallic conductors \_\_\_\_\_ with the increase in temperature.
- (c) Electronic polarisation is more pronounced in liquid dielectrics than in gases. (True/False)
- (d) Hysteresis loss occurs in non-magnetic materials. (True/False)
- (e) Good insulating material should have \_\_\_\_\_ dissipation factor.
- (f) Mica is an \_\_\_\_\_ .
- (g) The formula for Ohm's Law is \_\_\_\_\_.  $2 \times 7 = 14$

2. (a) What is metallic bonding ? What are the features of metallic bond ? 7
- (b) Differentiate between Conductor, Insulator and Semi-conductor. 7
3. (a) What do you mean by dry conductors ? Give some example. 7
- (b) Explain the phenomenon of heat developed in current carrying conductors. 7
4. (a) Explain the phenomenon of breakdown in gaseous dielectric. 7
- (b) State and explain the colloidal theory of breakdown of dielectric materials. 7
5. (a) Differentiate between Ionic polarisation and Dipolar polarisation. 7
- (b) What is Dielectric Loss ? Explain its dependence on frequency. 7
6. (a) What are the properties of a good insulating material ? 7
- (b) How is the electric strength of liquids determined ? 7
7. (a) Differentiate between Ferromagnetic, Paramagnetic and Diamagnetic materials. 7
- (b) Define Permeability. What are the factors affecting permeability ? 7

8. Write short notes on any **four** of the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) Magnetic resource
  - (b) Hysteresis loss
  - (c) Modern trends in electrical insulators
  - (d) Townsend's criterion
  - (e) Thermal breakdown of dielectric materials
  - (f) Relaxation and Collision time in conducting materials
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