No. of Printed Pages : 3 **OIEE-002**

DIPLOMA IN ELECTRICAL ENGINEERING (DELVI)

01614

Term-End Examination

June, 2011

OIEE-002 : ELECTRICAL ENGINEERING MATERIAL

Time : 2 hours *Maximum Marks : 70*

Note : *Each question carry **equal** marks. Question No.1 is **compulsory.** Answer **any five** questions.*

1. Multiple Choice Questions. **2x7=14**

(a) The unit of ϵ_0 is

(i) Cm^{-2} (ii) Hm^{-1}

(iii) Fm^{-1} (iv) dimension less

(b) Ionic polarization :

(i) decreases with temperature.

(ii) increases with temperature.

(iii) may increase or decrease with temperature.

(iv) is independent of temperature.

(c) The unit of Magnetic permeability is :

(i) Am^{-1} (ii) Wbm^{-1}

(iii) Hm^{-1} (iv) $WbA^{-1}m^{-2}$

(d) The energy gap in Diamond is :

(i) 5.4 eV (ii) 2.3 eV

(iii) 1.1 eV (iv) 0.08 eV

(e) Silicon is :

(i) Metal (ii) Insulator

(iii) Semiconductor (iv) None

(f) According to Ohm's Law :

(i) $V \alpha I$ (ii) $V \alpha 1/I$

(iii) $V \alpha I^2$ (iv) No Relation

(g) Hydrogen bonds are stronger than :

(i) Vander wall-bonds

(ii) ionic

(iii) metallic bond

(iv) covalent bond

2. (a) Explain the classification of material on the basis of energy band. **14**

(b) Explain resistance, inductance and capacitance for an electric circuit.

3. (a) Draw the hysteresis Loop and explain. **7x2=14**

(b) Show that for a prefect diamagnetic material $M = -H$, $\chi = -1$, $B = 0$.

4. (a) What are the effects of moisture on insulating system ? **7x2=14**

(b) Write the application of insulators in Morden electrical system.

5. (a) What is polarization ? **7x2=14**

(b) Explain superconductivity.

6. (a) Why does the conductivity of a semiconductor changes with impurity content ? **7x2=14**

(b) What is thermal discharge breakdown ?

7. (a) Explain the factors which influence the characteristics of insulating material. **7x2=14**

(b) How does frequency affect the electronic polarisiblity.

8. Write short notes on ***any four*** . **3½x4=14**

(a) Relaxation time

(b) Dielectric losses

(c) Magnetic Resonance

(d) Liquid insulating materials

(e) Theory of Van Hippel

(f) Classification of magnetic material.