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OIEE-002

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DIPLOMA IN ELECTRICAL ENGINEERING (DELVI) / ADVANCED LEVEL CERTIFICATE COURSE IN ELECTRICAL ENGINEERING (ACELVI)

Term-End Examination

December, 2011

OIEE-002 : ELECTRICAL ENGINEERING MATERIAL

Time : 2 hours *Maximum Marks : 70*

Note : *Answer in **English** Language **only.***
*(i) Question No. **1** is **compulsory.***
*(ii) Attempt **any four** out off **seven** questions.*
*(iii) All questions carry **equal** marks.*

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1. (a) Energy gap in silicon (Si) is : **2x7=14**

(i) 5.4 eV (ii) 2.3 eV

(iii) 1.1 eV (iv) 0.08 eV

(b) The unit magnetic field intensity is :

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

(iii) Hm^{-1} (iv) None of the above

(c) Ohm's law is valied in circuit :

(i) Linear (ii) Nonlinear

(iii) Both (iv) None of the above

(d) Germanium is a :

(i) Metal

(ii) Insulator

(iii) Semiconductor

(iv) None

(e) Time constant of RC series circuit is given by _____.

(i) RC (ii) R/C

(iii) $\frac{1}{RC}$ (iv) None of these

(f) Resistivity of conductor is :

(i) low (ii) high

(iii) very high (iv) None of these

(g) Dielectric constant K is defined as :

(i) $\frac{Cm}{CO}$ (ii) $\frac{CO}{Cm}$

(iii) COCm (iv) None of these

2. (a) Explain conductor, semiconductor and insulator in detail with one example. 7

(b) Differentiate hard and soft magnetic material. 7

3. (a) Explain super conductivity of metals in detail. 7

(b) Differentiate ferro, diamagnetic and paramagnetic materials. 7

4. (a) Explain mechanism of polarization and details about orientation polarization. 7

(b) Explain colloidal theory, Bubble theory in details. 7

5. (a) Differential intrinsic and extrinsic semiconductor with detail examples. 7

(b) Explain concept of dipole, in magnetic materials. 7

6. (a) What are the various factor that effect the characteristics of insulating materials ? 7

(b) What is the effect of moisture on the insulating material ? 7

7. (a) What is thermal discharge break down in gases ? 7

(b) How does frequency effect the electronic polarization ? 7

8. Write short notes on ***any four :*** **3.5x4**

(a) Dielectric losses.

(b) Theory of Van Hippel

(c) Hysteresis loss

(d) Heat developed in conductor

(e) Polar and non Polar Solids

(f) Insulation Measurement