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BIEEE-005

DIPLOMA IN ELECTRICAL ENGINEERING (DELVI)

Term-End Examination

June, 2013

BIEEE-005 : UTILIZATION OF ELECTRICAL ENGINEERING

Time : 2 hours *Maximum Marks : 70*

Note : *(i) Question No. **1** is **compulsory**.*

*(ii) Answer **any four** questions from **Q.No.2** to **Q.No.8**.*

1. Choose the correct answers : **2x7=14**

(a) The basic element of an electric drive are :

(i) electric motor and transmission system

(ii) electric motor, transmission system and control system

(iii) transmission and control system

(iv) electric motor and conversion equipment

(b) The main draw-back of electric drive is that :

(i) cumbersome drive

(ii) costlier in initial as well as maintenance cost

(iii) electric supply failure makes the stand still

(iv) all of the above

(c) DC motors are still preferred for use in :

(i) electric excavators, steel mills and cranes

(ii) lathes and machine tools

(iii) flour mills and jaw crushers

(iv) paper industry

(d) The conversion of AC into DC can be done by the use of :

(i) motor-generator set

(ii) mercury arc rectifier

(iii) silicon diodes

(iv) any of the above

(e) Illumination level required for precision work is approximately :

(i) 50 lm/m^2 (ii) 500 lm/m^2

(iii) 100 lm/m^2 (iv) 200 lm/m^2

(f) The life of incandescent lamp is expected to be :

(i) 500 Hrs (ii) 1000 Hrs

(iii) 100 Hrs (iv) 10,000 Hrs

(g) The pf of fluorescent tube alone is :

(i) 0.8 lag (ii) 0.5 lag

(iii) unity (iv) 0.8 lead

2. (a) State and explain laws of illumination. **2x7=14**

(b) Principle of operation of sodium vapour lamp with neat circuit.

3. State : (a) inverse square law 14
(b) Lamberts cosine law

4. Discuss the different methods of electric heating and their relative merits. 14

5. Derive expression for the simplified quadrilateral speed-time curve. 14

6. Draw general block diagram of AC electric locomotive and explain it. 14

7. With the help of a circuit diagram explain the working of a water cooler. 14

8. Write short notes on ***any two*** of the following : **2x7=14**
   (a) Flood lighting
   (b) Inductance furnace
   (c) arc lamp
   (d) Ultra sonic welding