Diploma / Integrated B.Tech 2nd Semester Examination  
June, 2014  
Basics of Electrical & Electronics Engineering  
Subject Code: EEL-010  
Time Allowed: 03 hours.  
Maximum Marks: 100

Before answering the question paper the candidate should ensure that they have been supplied the correct question paper. Complaints in this regard, if any, shall not be entertained after the examination.  

Note: Question No. 1 is Compulsory and attempt two questions from each section. All questions carry equal marks.

1(a) State & explain ohm’s Law. What are the limitations of this law?  
(b) Define the followings:-  
(c) What are the important points to be kept in mind while selecting the site for nuclear power plant?  
(d) Write any five fields of applications of Electronics.  

SECTION-A

2(a) Two coils connected in series having a resistance of 24Ω and when they connected in parallel have a resistance of 6Ω. Find the resistance of each coil.  
(b) What do you understand by Electric current? Explain the effect of temperature on resistance in following cases:  
   (i) Pure Metals  
   (ii) Insulators  
   (iii) Semiconductors  

3(a) State and explain Kirchhoff’s Laws. Explain their significance.  
(b) State and explain Nodal analysis.  

4(a) Define:  
   (i) Time period  
   (ii) Frequency  
   (iii) Cycle  
   (iv) Amplitude  
(b) Explain the construction of lead-acid-cell.  
(c) An alternating current is given by the expression i=70.7sin 314t. Determine  
   (i) Maximum Value of current  
   (ii) RMS Value of current  
   (iii) Frequency  
   (iv) Form Factor  
   (v) Peak Factor.  

SECTION-B

5(a) Draw & explain elementary block diagram of Hydropower Plant.  
(b) Differentiate between three phase and single phase system.  

6(a) Name at least five active components and draw their symbols.  
(b) To represent the resistance of a resistor colour coding is used, why. Determine the range in which the value of resistor lie having colour band sequence; green, BLUE, orange and gold.  
(c) Explain NAND, NOR & NOT Gates with their truth table.  

7(a) Describe the important properties of semiconductor.  
(b) Write a short note on Intrinsic and Extrinsic semiconductor.  
(c) Convert (1245)_{10} into binary number.