MID SEMESTER EXAMINATION -2015

BASIC ELECTRICAL ENGINEERING

[EE1003]

Full Marks: 25 **Time: 2Hours**

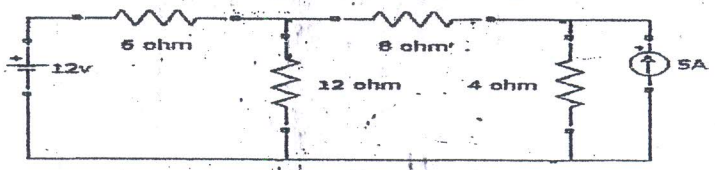
Answer any five questions including question No. 1 which is compulsory.

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.

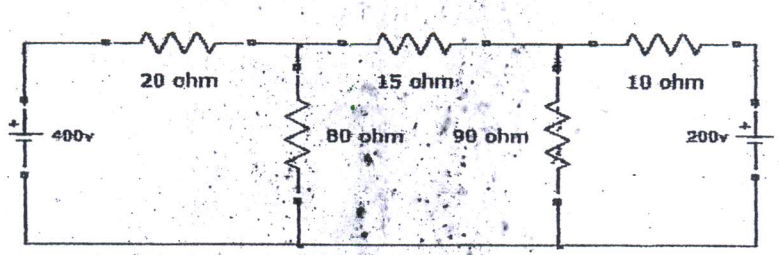
1. a) Write the two the important application of direct and alternating current? [10×5
   b) Draw the Single line diagram of typical A.C supply system.
   c) Why the internal resistance of an ideal voltage source is zero and ideal Current source is infinite?
   d) What are the ranges of voltage used for generation, transmission and distribution of Electrical Energy in India?
   e) Define electric field intensity and potential?
   f) Draw the electrical symbols for the quantities *i.e.* variable inductor, battery, wattmeter and voltmeter.
   g) Define form factor and peak factor of A.C. quantity.
   h) What is the frequency of Electrical energy generation in a)China b)Japan.
   i) Define active and passive elements with examples.
   j) Write the physical significance of time constant in capacitive circuit.

2. a. Find the Current through 8Ω resistor using Thevenin's theorem. [2.5



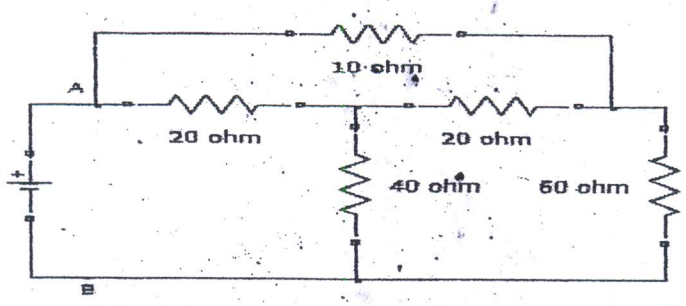
   b. Compare Hydro, Steam and Nuclear Power Plant in any five Aspects. [2.5

3. a. Find Current in 15Ω resistor using Nodal method. [2.5



b. A coil of resistance 24Ω and having inductor of 36H is suddenly connected to a D.C of 60V supply. Determine i) the Time Constant ii) the current after 3 sec iii)the energy stored in the magnetic field at t=3 sec. [2.5

4. a. Find the equivalent resistance between terminals A and B in the circuit shown using Delta /Star Transformation. [2.5



[2.5

b. State and briefly explain Superposition Theorem with one example.

5. a. A sinusoidal alternating voltage of 50 Hz has an r.m.s value of 200V. Write down the equation for the instantaneous value and finds this value 0.0125 sec after passing through a positive maximum value. At what time measured from a positive maximum value will the instantaneous voltage be 141.4 volts. [2.5

b. Describe different method of house Wiring and explain the need of earthing in an Electrical Installation. [2.5

6. Write Short notes on any two [2.5×

a. Electrical safety in Industry
b. Norton's Theorem
c. Classification of Energy Sources
d. different types of fuses

**********BEST OF LUCK**********