Examination May-2014

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Subject:- Basic Electrical and Electronics Engineering
Subject code:-EE-101

Paper ID- A0126

Time Allowed: 03 Hours **Max Marks 60**

Note: Attempt all questions from section-A, Attempt five questions from part-A and Part-B selecting two from each part.

10x2=20

Question 1.

i. Why NAND gates is called universal gate, Explain.
ii. Subtract using 2's and 1's complement (18-10).
iii. What is the difference between FET and MOSFET.
iv. What is the difference between Silicon and Germanium Semiconductor and which is better.
v. What is meant by the average value of an ac voltage waveform?
vi. Explain the difference between electric and magnetic circuits?
vii. Define conductance, suspectance and admittance?
viii. What is the main application of Zener Diode.
ix. What is PIV of center tap full wave rectifier.
x. Define power factor and its significance in ac circuits?

(8 Marks each)

Part-A

1. An iron ring has mean dia of 25 cm and cross-sectional area of 4 cm^2. It is wound with a coil of 1200 turns. An air gap of 1.5mm width is cut out in the ring. Find the current required to produce a flux of 0.5 mWb in the air gap. Relative permeability of iron is 800.
2. What are various types of three phase connections, explain each type.
3. A voltage of 1 Sin (200 $\Pi t + 30^0$) volts is applied to series RLC circuit having R=80Ω, L = 41.3mH and C=0.797μF. Find rms current, instantaneous current, power factor, active power and apparent power.
4. Explain the principal of working of three-phase induction motor.

(8 Marks each)

Part-B

1. What is Rectifier? Explain the Centre tap full wave rectifier and derive expression for Average current, rectification efficiency, D.C output voltage and PIV.
2. What is difference between Semiconductor, Insulator and conductor? Explain CE configuration and derive output current equation. Also give relation between α, β and γ.
3. Explain working, principle and applications of SCR.
4. Write short notes on 741 and 555 IC's.

End