**Very short Q**

……Define MMF and Reluctance with their relationship equation.

……..An alternating current i is given by I=50 sin314t

. Find the following:

1. Time Period
2. The maximum value of current

====Define Flux density and Magnetic Field Intensity

==== define peak factor, form factor, average value, RMS value in terms of AC signal.

====An alternating voltage v is given by v=150 sin100t

Find the following:

1. Time Period
2. The maximum value of current

====What is the difference between Electric field intensity & magnetic field intensity?

==== define Norton’s and Thevenin’s theorems

==== applications of sensors and biosensors

==== define superposition theorem.

**Long Q**

=====Using superposition theorem find out the potential difference across 20 ohm resistor in the figure 3 shown below.

15Ω

15Ω

10Ω

figure-3

**-**

10V

+

20Ω

12V

10Ω

**-**

15V

+

I

======Write down the expressions of instantaneous voltage & current for a pure resistive circuit. Draw its waveform and Phasor diagram also drive formula for its average power.

==== Types of sensors and their applications.

===== =====A rectangular shaped core is made of mild steel plate of 25mm x30 mm cross section. The mean length of the magnetic path is 18 cm. The exciting coil has 400 turns and 1.0 A. Calculate (i) Magnetic Field Intensity (ii) Magnetic Flux density (iii) Reluctance (iv) Magnetic Flux of the magnetic circuit. Assume relative permeability of mild steel as 1000.

====Find the equivalent delta circuit.



=====Write down the expressions of instantaneous voltage & current for a pure capacitive circuit, draw its waveform and Phasor diagram. Also drive formula for its average power.

=====If a 5ohm 10 ohm and 20-ohm resistor is connected in star, find the equivalent delta connection.

==========p n junction diode symbol and operations for both biasing with VI graph.

**Very Long Q**

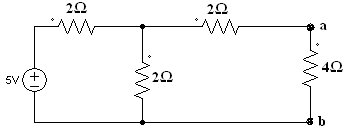
==Derive the Average value for a sinusoidal AC Signal by Analytical method. An ac sinusoidal current has rms value of 60 A at 50 Hz frequency. Write expression of instantaneous current and obtain its vale at 0.005 sec after passing through the maximum positive value.

==== State Superposition Theorem. Write down the steps involved in it.

====== Write notes on biosensors with its main modules as well as its application that use in healthcare

=== Define BJT with symbol as well as its operation also write its applications.

=== Using Thevenin’s theorem find out the current trough the 4Ω resistor for the circuit shown below



==== Derive the Average and RMS value for a sinusoidal AC Signal by analytical/graphical method.