SANKALCHAND PATEL COLLEGE OF ENGINEERING, VISNAGAR

MID TERM EXAMINATION, March-2009

B.E.SECOND SEMESTER (CE/EC/CIVIL)

ELEMENTS OF ELECTRICAL ENGINEERING

TIME: 10:30 To 12:00

DATE: 27/03/2009 **MARKS: 40**

Q:1 **(a)** What is an impedance tringle? Draw impedance tringle for **(04)**
1. R-L Series Circuit.
2. R-C Series Circuit.

(b) Comparison between series and parallel electrical circuit. **(04)**

Q:2 **(a)** Derive the relationship between the voltage and current for a purely Capacitive Circuit. Also explain average power consumed by circuit is zero. **(06)**

(b) An Alternating current of frequency 50 Hz has a maximum value of 100A. **(06)**
Calculate:
1) Its value 1/600 second after the instant the current is zero and its value decreasing the after wards.
2) How many second after the instant the current is zero will current attain the value of 86.6 A?

OR

(a) Explain R-L Series Circuit. **(06)**

(b) For R-C Series circuit consisting a resistor of 50 Ω and a capacitor of 100μF.calculate the following at 230V, 50Hz mains **(06)**
1) Impedance
2) Current
3) Voltage Across R
4) Voltage Across C
5) Power Factor
6) Power

Q:3 **Attempt any Two** **(08)**

(a) Show that the form factor of the sinusoidal wave form is 1.11

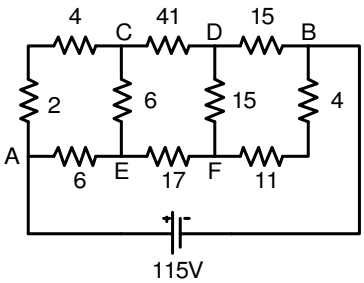
(b) State and explain Kirchhoff's laws with suitable illustration.

(c) Define:
1) Frequency
2) Inductive reactance
3) Specific resistance
4) Ohm's Law

Q:4 **(a)** Derive an equivalent resistance for series and parallel connected resistance. **(06)**

(b) A resistance of 12Ω is connected in series with the combination of 15Ω and 20Ω resistors in parallel. When a voltage of 120V is supplied across the whole circuit, find the current taken from the supply. **(06)**

OR

(a) Explain the method of transforming the delta into star. **(06)**

(b) Find the current in 17Ω resistor in the network shown in fig. using star/delta conversion. The numbers indicate the resistance of each member in ohms. **(06)**