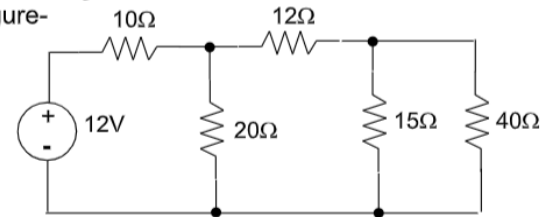
ASSIGNMENT ON UNIT 1, UNIT 2 AND UNIT 3

1 If a 1ohm 2ohm and 32/3ohm resistor is connected in star, find the equivalent delta connection.

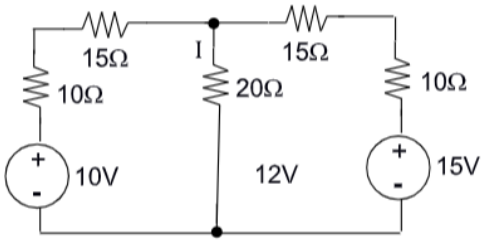
2 State Superposition Theorem. Write down the steps involved in it.

3 State Thevenin's Theorem. Write down the steps involved in it.

4 State Norton's Theorem. Using Norton's theorem, find out the Current through 15Ω resistor as shown in figure-



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



6 An ac sinusoidal current has rms value of 40 A at 50 Hz frequency. Write expression of instantaneous current and obtain its value at 0.002 sec after passing through the maximum positive value.

7 Derive the Average value for a sinusoidal AC Signal by Analytical method.

8 Derive the Average and RMS value for a sinusoidal AC Signal by graphical method.

9 Calculate the rms value, the form factor, peak factor of a periodic voltage having the following values for equal interval of timr, changing suddenly from one value to the next {0, 10, 20, 30, 40, 100, 120, 100, 40, 30, 20, 10}.

10 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.

11 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.

12 Define the following

a) Flux
b) Flux density
c) MMF
d) Magnetic field Intensity
e) Reluctance

13 A rectangular shaped core is made of mild steel plate of 15mm x 20 mm cross section. The mean length of the magnetic path is 18 cm. The exciting coil has 300 turns and 0.7 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 940.