EE-101/1846
B.Tech. (Semester-I) Examination-2017
Electrical Engg.

Time: *Three Hours*
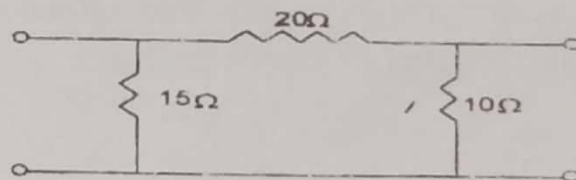
Maximum Marks: 100

Note: Attempt questions from all the sections.

Section-A
(Short Answer Type Questions)

Note: Attempt any ten questions. Each question carries 4 marks. (4x10=40)

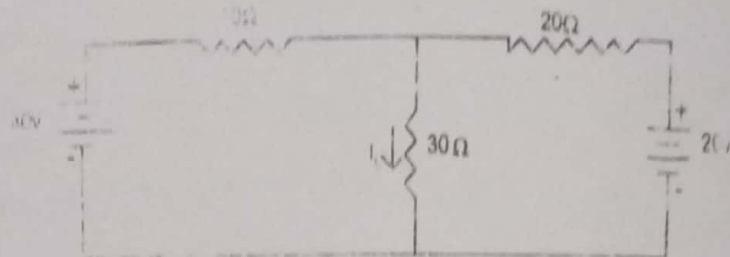1. Obtain the star network from the delta network.
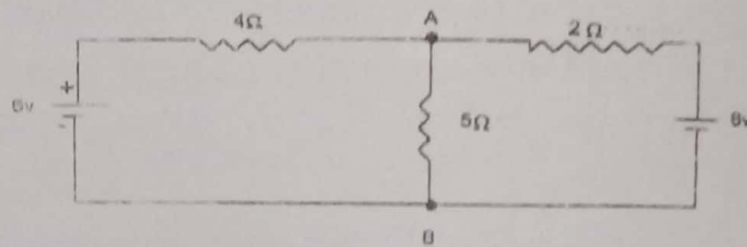

2. Differentiate Active and Passive elements

3. Explain the following in brief:

   (a) Power factor

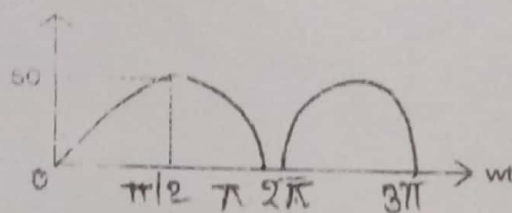   (b) Reactive power

   (c) Apparent power

Find the current I_L for the circuit shown in fig using superposition theorem.

5   Find the current through branch AB using Thevenin's theorem.

6.   Calculate the average value and effective value of a half wave rectifier as shown in fig.

7.   Drive the expression of impedance of series R-L-C circuit and the phase diagram.

8.   Explain quality factor in brief.

9. Differentiate the single phase and 3-phase systems.

10. Write down the relation between phase and line voltage for star connected load.

11. Three star connected identical coils are supplied by 100v, 3ph supply. Each coil takes 1000wt. The power factor is .8 lagging. Calculate:
    (a) Line current
    (b) Total power supplied, if the coil are connected in star.

12. Explain the working of shunt multiplier.

13. Explain the B-H curve.

14. Drive the expression of EMF equation for single phase transformer.

15. Explain the working of DC shunt motor.

Section-B
(Long Answer Type Questions)
Note: Attempt any three questions. Each question carries 20 marks. (20x3=60)

1. Explain the principle of operation of 3-phase induction motor and draw the torque slip characteristics of induction motor and explain it.

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2. Explain the losses in transformer and drive the expression of maximum efficiency of transformer.

3. A delta connected balance load is connected to 3ϕ, 400 V supply. The load P.f. is .8 lagging. The line current is 34.64 amp find the following:
   (a) Resistance, Reactance and impedance of the load/ phase
   (b) Total power
   (c) Total reactive V-amp. Draw the phasor diagram showing all quantities

4. Explain the following in brief:
   (i) Auto transformer
   (ii) 3- ϕ power
   (iii) R-L-C series N/w
   (iv) D. C. Machine

5. Explain the Thevenin's theorem and determine current I for the network shown in fig.
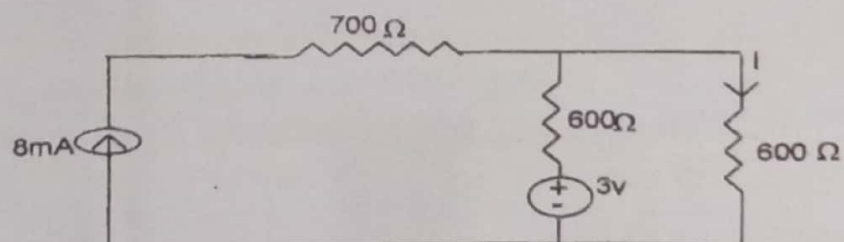
6. Explain the general layout of electrical power system and functions of each element.

EE-101-1846-B-400