

Registration No :

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Total Number of Pages : 02

B.Tech  
BE2102

2<sup>nd</sup> Semester Back Examination 2018-19  
**BASIC ELECTRICAL ENGINEERING**  
BRANCH : CHEM, CIVIL, CSE, ECE, EEE,  
ELECTRICAL, IT, MECH, PLASTIC, TEXTILE  
Time : 3 Hours  
Max Marks : 70  
Q.CODE : F115

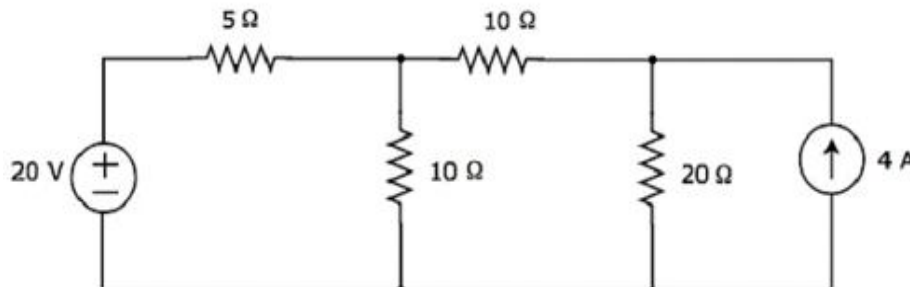
Answer Question No.1 which is compulsory and any FIVE from the rest.  
The figures in the right hand margin indicate marks.

**Q1 Answer the following questions : (2 x 10)**

- a) If a conductor of resistance R connected to a voltage source will compress to half of its length what will be the variation of current flowing through the conductor?
- b) Specify different active and passive elements with symbolic representation.
- c) State KCL and KVL.
- d) What is permeability?
- e) Define RMS value. How it is related to Peak factor?
- f) Which instruments are used for measurement of Power and Energy?
- g) Write the advantage of dynamometer type instruments over MI instruments.
- h) Why the efficiency of transformer is high among all electrical Machine and device.
- i) Convert  $\frac{5+j20}{3-j15}$  to polar form.
- j) What are the different non-conventional sources of energy?

**Q2 a) State and explain superposition theorem? (5)**

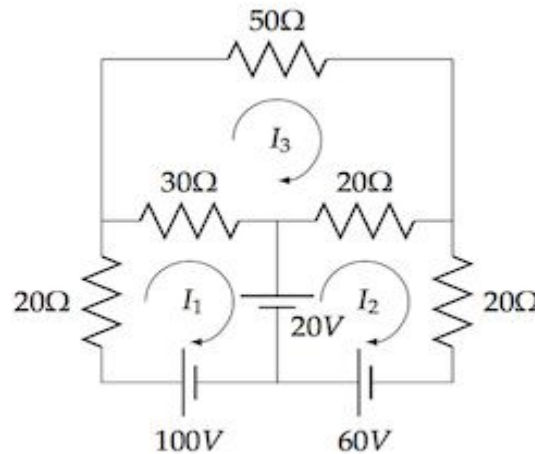
- b) Find the current flowing through 20 Ω resistor of the following circuit (5) using superposition theorem.



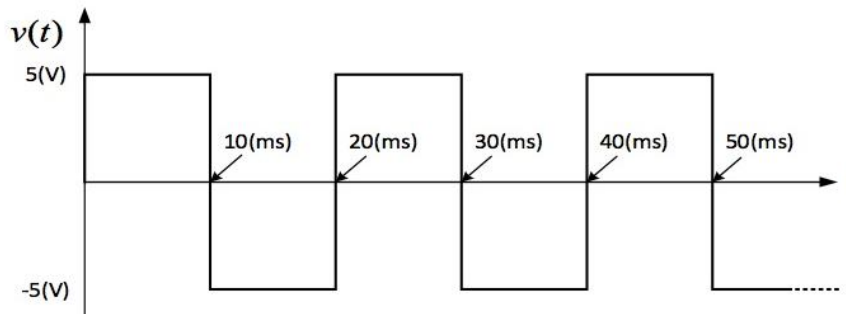
**Q3 a) Explain the conversion process of star network to a delta network. (5)**

- b) A magnetic material produces a flux density of  $10\text{wb}/\text{m}^2$  due to certain mmf. For the same mmf value, another magnetic material produces a flux density of  $12\text{wb}/\text{m}^2$ . What is the ratio of their relative permeability? (5)

- Q4** a) Derive the expression for EMF equation of transformer. (5)  
 b) Find the value of  $I_1$ ,  $I_2$  and  $I_3$  by using mesh analysis. (5)



- Q5** a) Find the RMS value of the voltage wave form. (5)



- b) Compare between three phase and single phase AC system. (5)
- Q6** Contrast brief idea about various generating plants. (10)
- Q7** Describe B-H curve for magnetic materials and discuss the various losses occur in the core of electrical equipment due to periodic reversal of magnetization. (10)
- Q8** Write short answer on any TWO : (5 x 2)
- Induction Motor
  - Principle of operation of D.C Generator
  - Transients in R-L and R-C circuit