Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech**
BE2102

2nd 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.

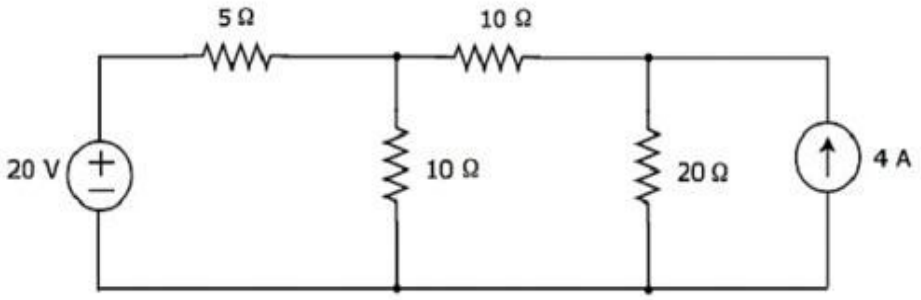
h) Why the efficiency of transformer is high among all electrical Machine and device.

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 using superposition theorem. **(5)**

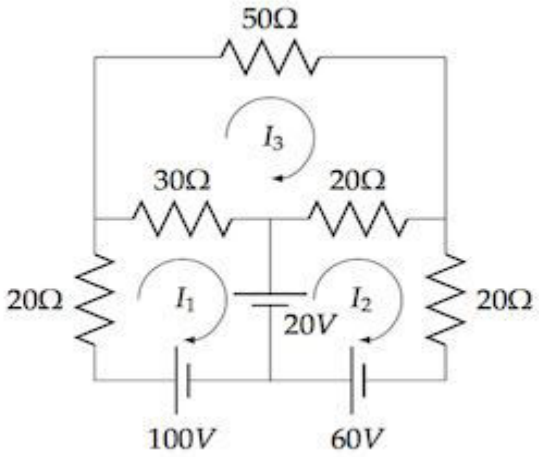


Q3 **a)** Explain the conversion process of star network to a delta network. **(5)**

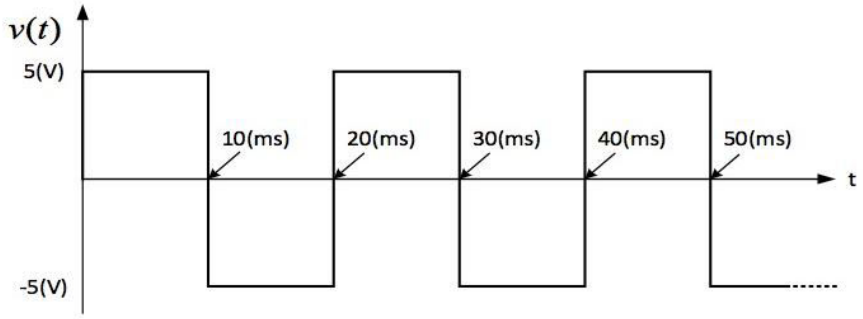
b) A magnetic material produces a flux density of 10wb/m^2 due to certain mmf.For the same mmf value, another magnetic material produces a flux density of 12 wb/m^2. What is the ratio of their relative permeability? **(5)**

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 discus 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)**

a) Induction Motor

b) Principle of operation of D.C Generator

c) Transients in R-L and R-C circuit