Dr. Babasaheb Ambedkar Technological University, Lonere
Examination                    (S.)
B.Tech. Course in Civil / Chemical / Mechanical / Petro-chemical Engineering
Subject-Basic Electrical Engineering

Date-
Time- 2·00 – 5:00 pm    **0 4 MAY 2017**    EE106

Semester-I
Max. Marks-60

**Instruction to Students:-**

**1. Attempt any FIVE questions from** Question 1 to Question 6.

2. Illustrate your answers with neat sketches, diagrams etc wherever necessary.

3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.
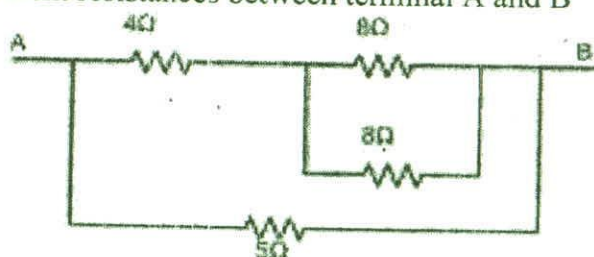
Q.1)a)   State and Explain Ohm's law.                                              **4M**
  b)   Explain circuit for resistances connected in series with necessary voltage and current relations.                                                                 **4M**
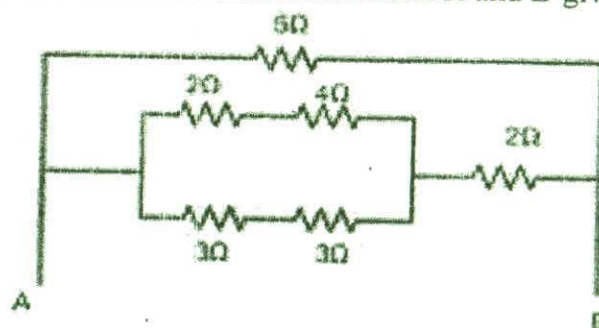  c)   Calculate equivalent resistances between terminal A and B                    **4M**



OR

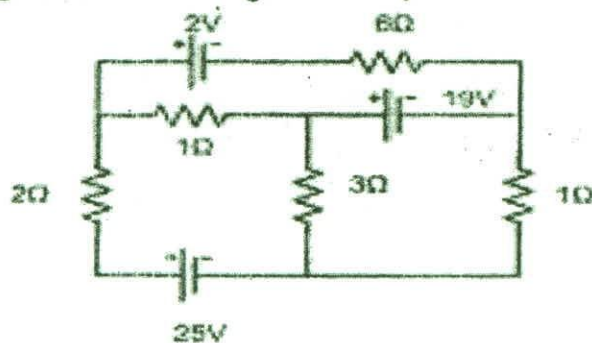  c)   Calculate equivalent resistances between terminal A and B given below         **4M**



Q.2)a)   State and Explain the following:-                                          **6M**
         i) Source Transformation technique          ii) Thevenin's theorem

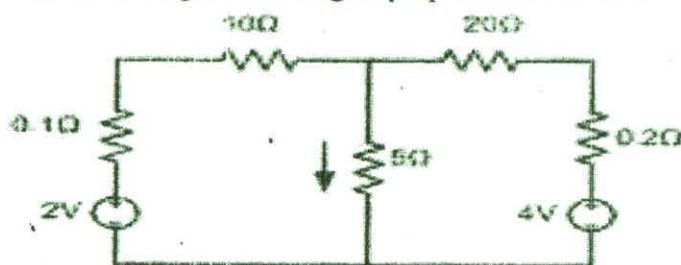b)   Find current through 6 Ω resistor using Mesh analysis



6M

OR

b)   Determine the current through 5 Ω using Superposition theorem          6M



Q.3)a)   Define the following terms:-          6M
  i) Cycle          ii) Time period          iii) Instantaneous value          iv) Peak value
  v) Average value          vi) RMS value

  b)   Explain AC circuit with pure resistance and derive equations for average and
       instantaneous power.          6M

Q.4)a)   State and explain Active power, Reactive power and Apparent power with help of
         Power triangle.          6M

OR

Q.4)a)   Explain series R-L circuit with neat labelled diagram and waveforms and draw
         impedance triangle for the same circuit.          6M

  b)   A voltage of 150 V, 50 Hz, is applied to coil of negligible resistance and
       inductance of 0.2 H. Write the time equation of voltage and current.          6M

Q.5)a)   Explain magnetic effect of electric current. Also explain dot and cross convention.          6M
  b)   Explain the terms i) Statically induced emf          ii) Dynamically induced emf.          6M

Q.6)a)   Derive the emf equation of single phase tranformer and explain voltage and
         current ratio of an ideal transformer.          6M

OR

  a)   Explain the following types of transformer in detail:-          6M
  i) Core type transformer          ii) Shell type transformer.

  b)   A 10 KVA transformer having 50 number of turns on primary and 10 number of
       turns of secondary is connected to 440 V, 50 Hz, AC supply. Calculate:-
       a) Secondary voltage on No load.
       b) Full load primary and secondary current.
       c) Maximum value of the flux in core.