DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD -402 103
### Mid Semester Examination – October - 2017

Branch: Group B   **Sem.:- I**

Subject with Subject Code:- Basic Electrical Engineering [EE104]   **Marks: 20**

Date: - 4/10/2017   **Time: - 1 Hr.**

Instructions: -

1. Illustrate your answers with neat sketches, diagrams etc wherever necessary.
2. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

                                                                            (Marks)

Q.No.1.   Attempt the following. (3 x 2 marks)   **(06)**

a) Define power and energy write their SI units
b) State Maximum Power Transfer Theorem?
c) Find the equivalent resistance across terminal A and B.(figure-1)
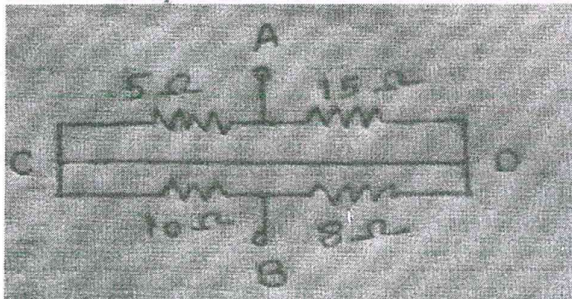
Figure-1

Q. No. 2.   Attempt any one of the following: (1x 6 marks)   **(06)**

a.) A water immersion heater develops 1800 k Joule heat energy to boil the water 20 °C to 70 °C when connected across 240 Volt supply. The heater has resistance of 50 Ω and heat efficiency is 85 %. Determine
   i. volume of water.
   ii. Input energy.
   iii. Time required to boil the water.
   Assume specific heat of water 4200 J/kg C.

FirstRanker.com - Firstranker's choice

b.) Determine current flowing through 5 Ω register using superposition theorem.(figure-2)
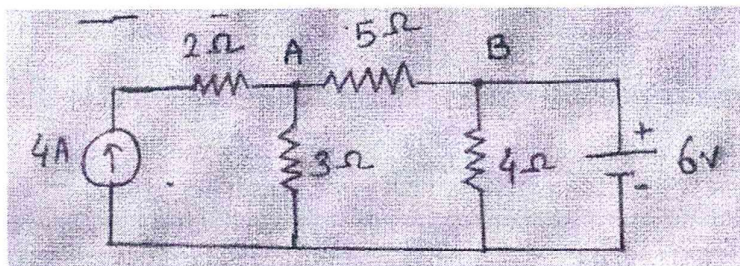

Figure-2

Q. No 3.   Attempt any two of the following (2 X 4 marks)   (08)

a.) Find the current through 10 ohm resistance using loop analysis(Figure-3)
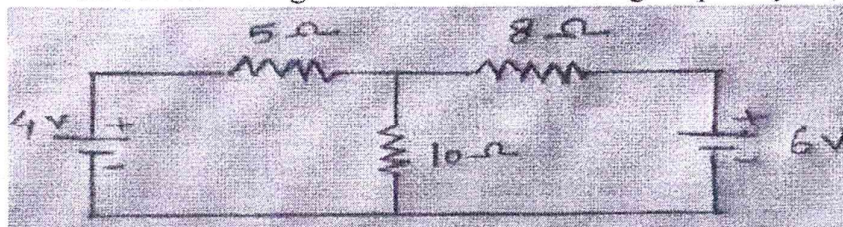

Figure-3

b.) . Define R.T.C. and prove $\alpha_t = \dfrac{\alpha_0}{1+\alpha_0 t}$ Where α_0 = tempt. coeff. at 0°C α_t = tempt. coeff. at t °C.

c.) State Thevenin's theorem and explain how it is applied for network problem.