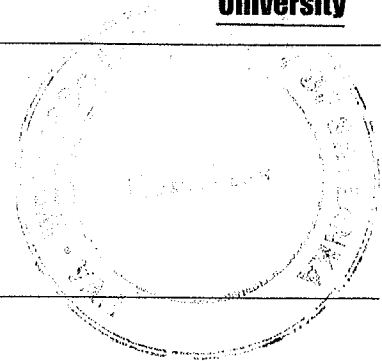


**Uva Wellassa University of Sri Lanka**  
**Faculty of Science and Technology**  
**Department of Science and Technology**  
**200 level 1<sup>st</sup> Semester Examination –July /Aug. 2016**  
**SCT 253-1 Applied Electricity**



All symbols have their usual meaning, unless defined.

Scientific Calculators are allowed.

Duration: One (01) hour

Number of questions: Two (02) Esseys

Mark allocation: 100

Answer all the questions

1.
  - a. State Lenz's law. (10 mark)
  - b. A conductor, 500 mm long, is moved at a uniform speed at  $90^\circ$  to its length and to a uniform magnetic field having a flux density of 0.4 T. If the e.m.f. generated in the conductor is 2 V and the conductor forms a part of a closed circuit having a resistance of  $0.5 \Omega$ , calculate
    - i. The velocity of the conductor in  $\text{ms}^{-1}$ . (10 mark)
    - ii. The force acting on the conductor. (10 mark)
    - iii. The work done in joules when the conductor has moved 600 mm. (10 mark)
  
2.
  - a. Determine the current,  $I$  in the circuit shown in Figure 01 using the node voltage method. (30 mark)
  - b. For the circuit of Figure 02 calculate
    - i. The current drawn from the source (8 mark)
    - ii. The potential difference across each resistor (6 mark)
    - iii. The current through each resistor and (12 mark)
    - iv. The power dissipated by the  $5 \Omega$  resistor (4 mark)

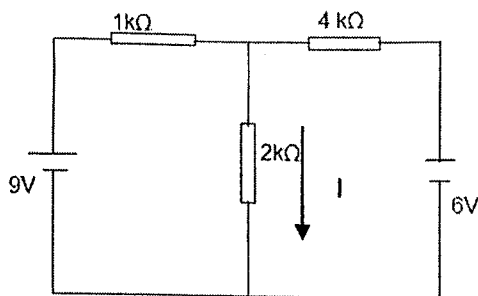


Figure 01

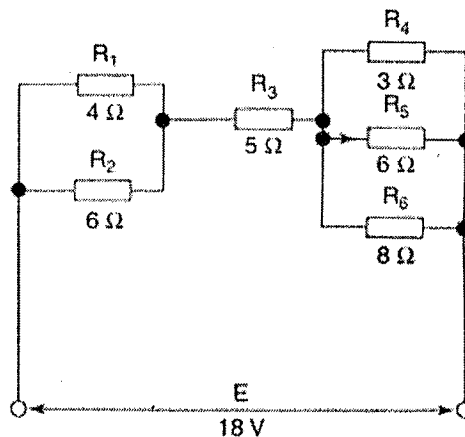


Figure 02