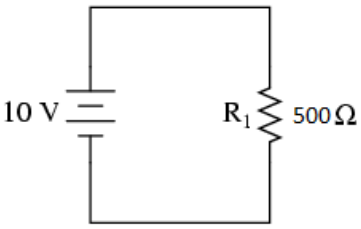
PHYSICS 11 **Circuits** **Practice Test** **Name: _____**

Written Answer Questions

1) Consider the simple circuit. [6 pts total]

a) Determine the current in R1. [2 marks]



1a)_____

b) Determine the power draw for R1. [2 marks]

1b)_____

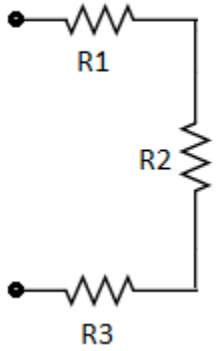
c) Determine the energy used by R1 if it is connected to the circuit for 10 minutes. [2 marks]

1c)_____

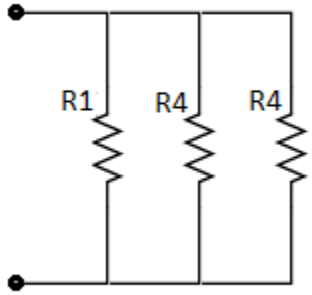
2) Determine the equivalent resistance for the following resistor networks. **Use the following resistances:**

R1 = 20 Ω R2 = 80 Ω R3 = 100 Ω R4 = 200 Ω

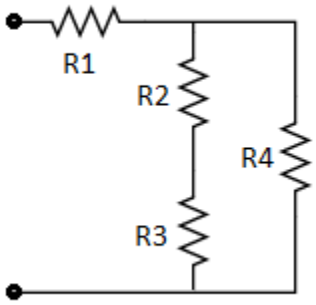
a) [2 marks]



b) [3 marks]



c) [3 marks]



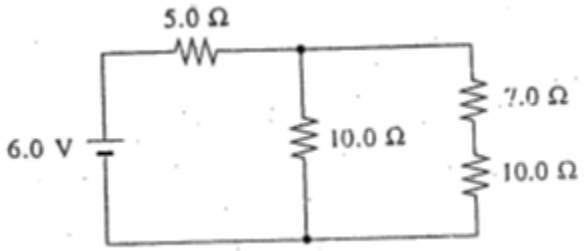
2a)_____

2b)_____

2c)_____

3) Consider the circuit pictured to the right. Determine the following:

a) The current through the 7.0 Ω resistor [4 marks]



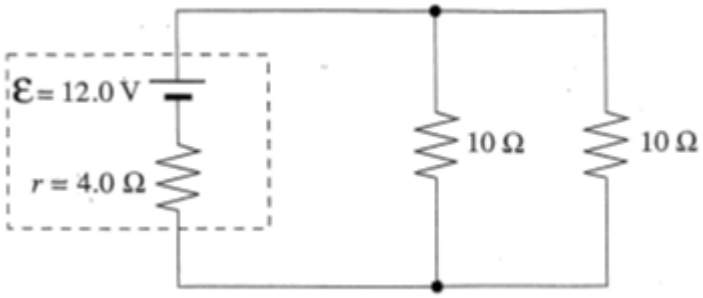
3a)_____

b) The charge (Q is measured in **C**oulomb) that passes through the **7.0 Ω resistor** in 20.0 seconds [2 marks]

3b)_____

4) Consider the circuit to the right. Note that resistor r = 4.0 Ω is internal resistance.

a) Determine the terminal voltage. (Hint: you will need I_T first) [4 marks]

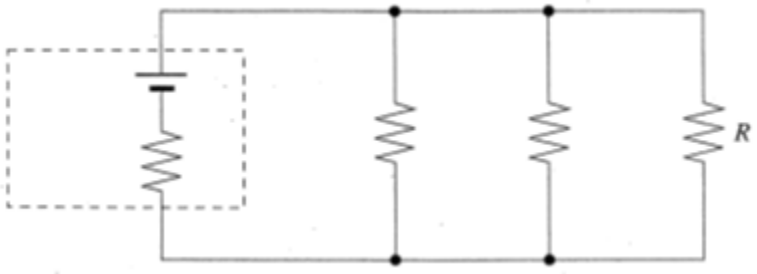


4a)_____

b) What is the total power consumed by the circuit that is lost to the internal resistance? [2 marks]

4b)_____

c) Another resistor R is added to the circuit from Question 4, giving the circuit shown to the right. **Does this increase, decrease or have no effect on terminal voltage?** Justify your answer. [2 marks]



4c)_____