Year 11 Physics NAME_____

Electric Fields and Current Electricity Assignment

1.

a) If a positive charge of 8.3×10^{-18}C is placed in a uniform electric field and feels a force of 12 N to the north, calculate the electric field strength. /3

b) If the electric field in part a was produced by two parallel charged plates a distance of 1.2 m apart, calculate the potential difference between the plates. /2

2.

a) Draw a diagram of a battery with a wire connected from positive to negative. Show which direction conventional current flows, and which direction the electrons flow. /2

b) List four factors that affect the resistance of a wire. /2

3.

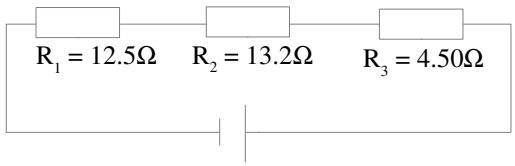
a) Calculate how many electrons flow down a wire in 5 seconds when the current flowing is 12 amps. (Hint: 1 coulomb = 6.24×10^{18} electrons) /2

b) Calculate the work done (energy used) by the electricity when 2 coulombs flow through a potential different of 7 volts. /2

c) If 2 amps at 10 volts are used in a speaker in a stereo, calculate its power in watts. /2

4. Consider the following circuits and determine the total resistance in each circuit.

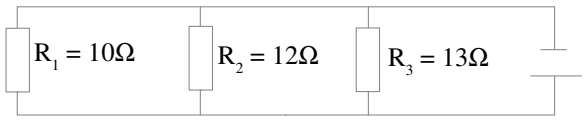
a)



R_T = ?

/2

b)



R_T = ?

/2

c)

The ammeter reads 2 amps, and the voltmeter reads 25 volts. R = ? /2

TOTAL /21