

Name	Score

Question 1:

State Kirchoff's laws for:

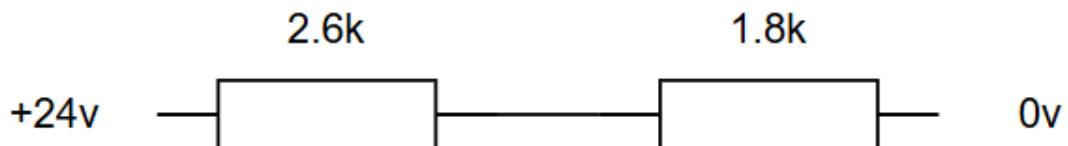
a) Current (1 mark)

b) Voltage (1 mark)

c) State ohms law (1 mark)

Question 2

The following circuit contains two resistors



a) State the relationship between the two resistors (1 mark)

b) Calculate the total resistance of the circuit, show your working (1 mark)

c) Calculate the current flowing through the circuit, show your working (1 mark)

d) Calculate the total power dissipated by the circuit, show your working (2 marks)

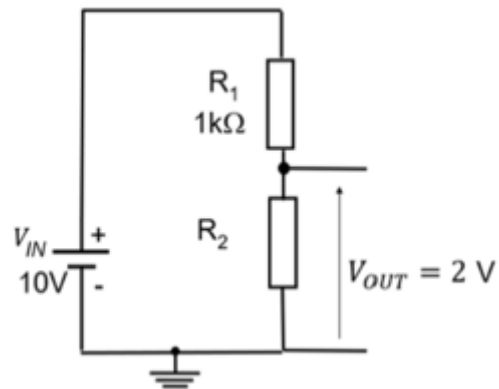
Question 3

a) State the difference between a fixed and variable resistor (2 marks)

b) Why is it important to stay within a resistor's power rating

Question 4:

An engineer is designing a voltage divider for an amplifier biasing to give an output voltage (V_{out}) of 2 V, as shown in the image below. The input voltage is 10v and R_1 is $1k\Omega$



- a) Determine the value of R_2

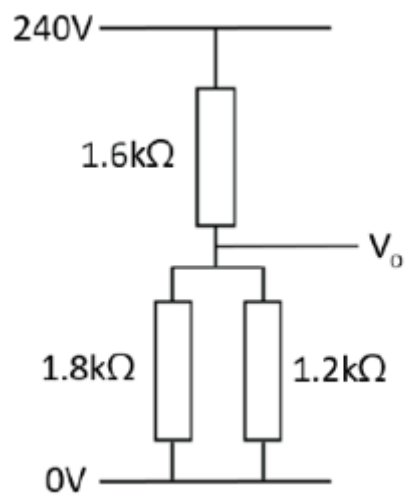
Additional information:

$$V_{OUT} = V_{IN} \left(\frac{R_2}{R_1 + R_2} \right)$$

Show your workings. (4 marks)

Question 5:

The following circuit shows us a potential divider, the circuit indicates no other resistive loads

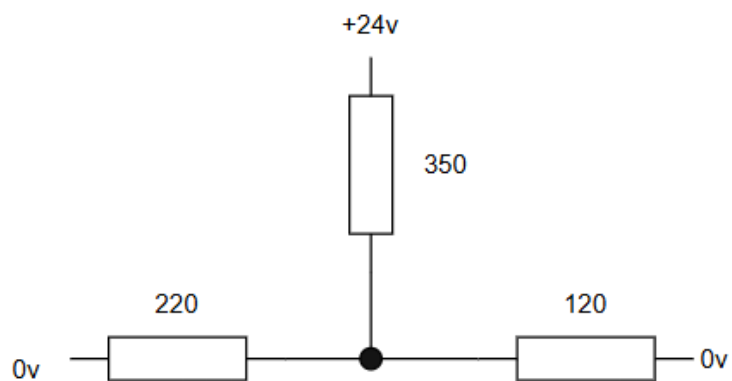


- a) Calculate the output voltage V_o , show your workings. (3 marks)

- b) Calculate the current in the circuit, show your workings. (1 mark)

Question 6:

The following circuit has 3 resistors around a node:



- a) Calculate the current going through the 120 ohm resistor, show your workings (3 marks)

- b) Calculate the voltage drop across the 220 ohm resistor, show your workings (2 marks)

Question 8:

a) Explain the use of a Light Dependant Resistor (LDR) in a circuit (2 marks)

b) Explain the use of a thermistor in a circuit (2 marks)
