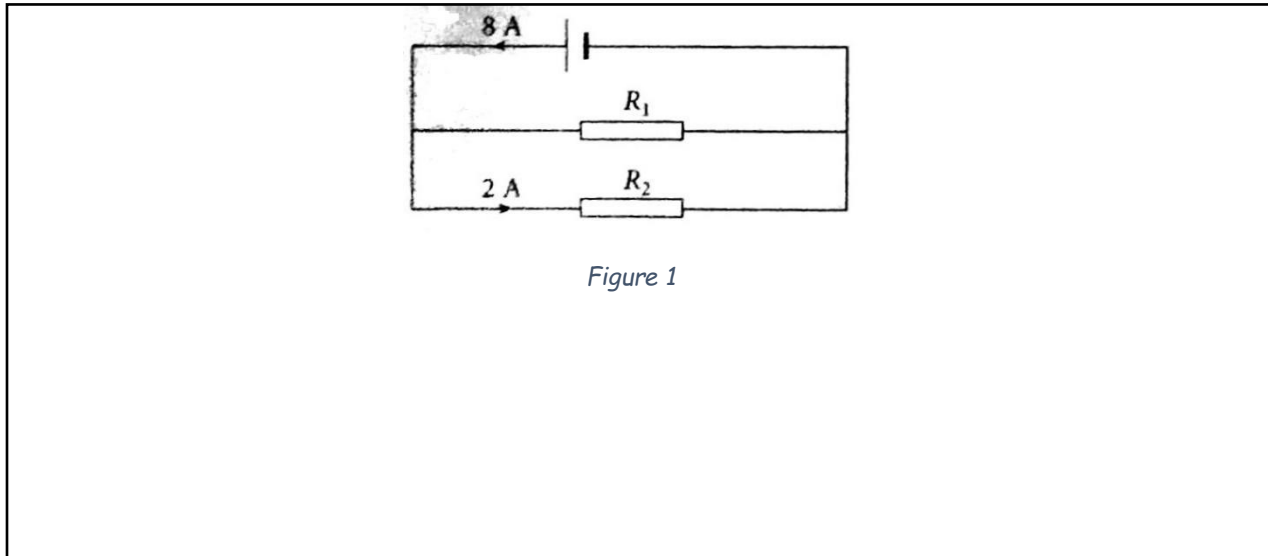


Signature: Name: Marks:

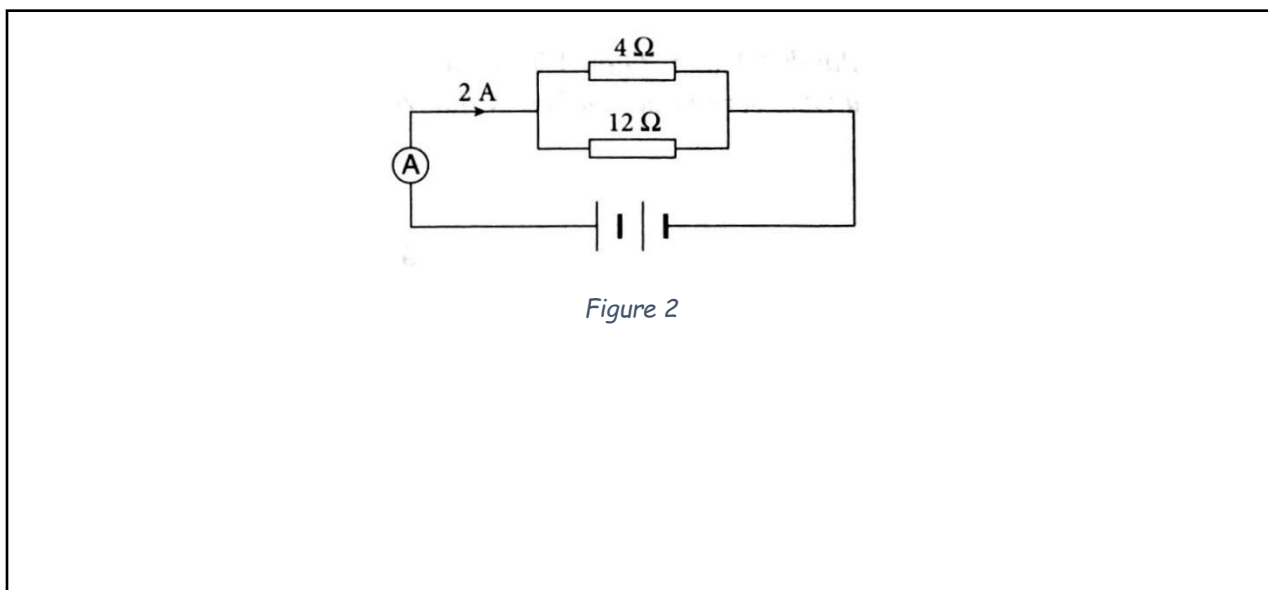
Parallel and Series Circuits PII

Q1.

The diagram below shows an electric circuit. What is the ratio of R_1 / R_2 ?

**Q2.**

The diagram below shows a battery which provides a current of 2 A to resistors of $4\ \Omega$ and $12\ \Omega$ connected in parallel. How much power is dissipated by both resistors in 2 minutes?



Signature: Name: Marks: **Q3.**

The diagram shows three dry cells with an emf of 1.5 V each, supplying a current of 0.2 A to a filament bulb in a torchlight. How much energy is supplied to the bulb in 10 minutes? [Assume the internal resistance of each dry cell is negligible]

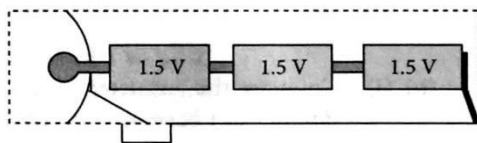


Figure 3

Q4.

In the circuit shown below, the dry cell has an emf of 6.5 V and internal resistance of 1Ω . What is the potential difference, V , across the 4Ω resistor?

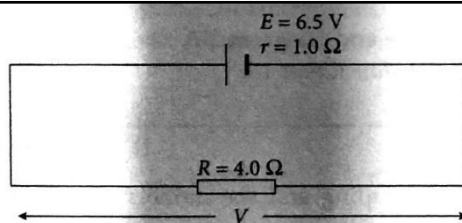


Figure 4

Signature: Name: Marks: **Q5.**

In the circuit shown in the diagram below, the reading of the voltmeter is 6 V when switch S is open. When switch S is closed, the voltmeter reads 5.8 V and the ammeter reads 0.5 A. What is the internal resistance of the battery?

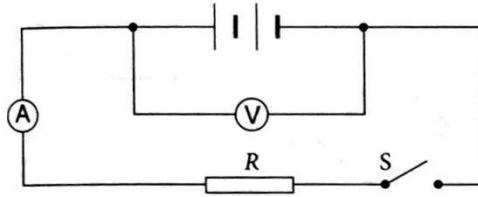
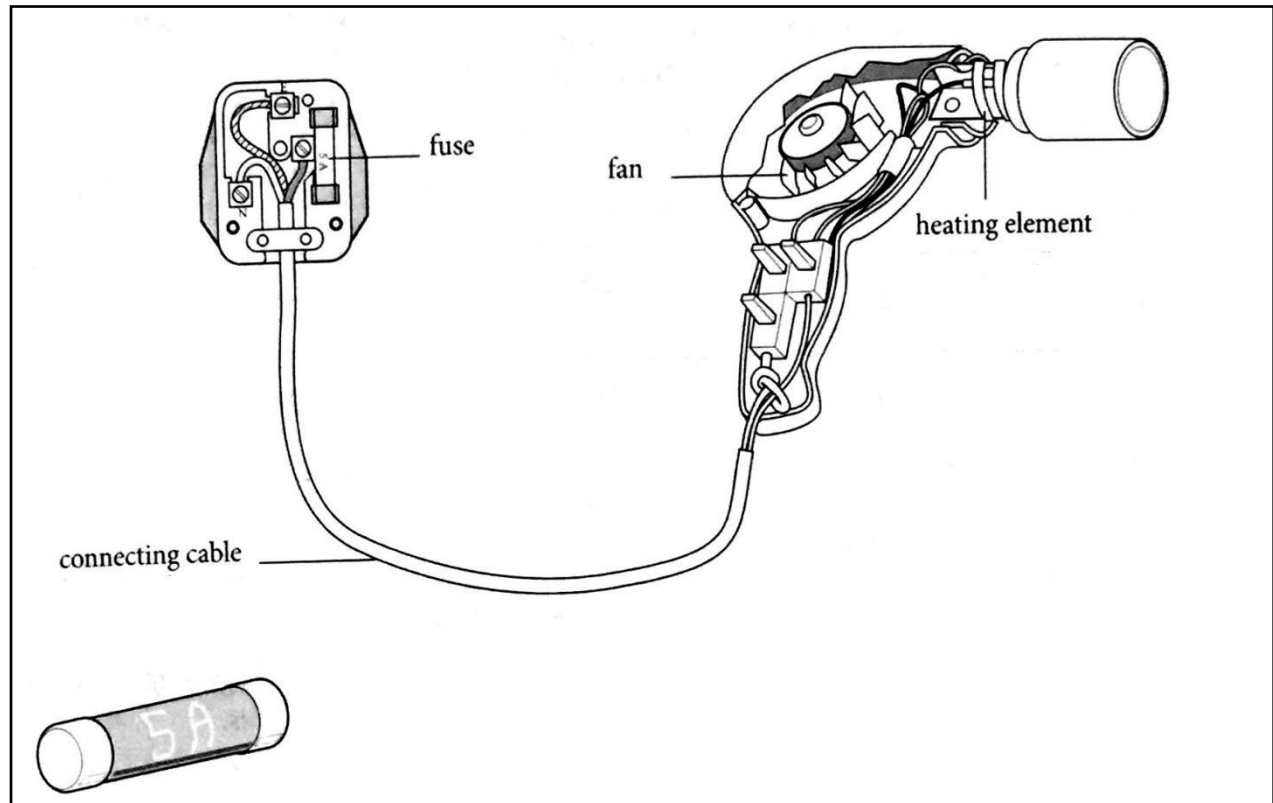


Figure 5

Signature: Name: Marks: **Q6.**

The diagram shows a hair dryer labelled 240 V, 1000 W being connected to a three-pin plug. The other diagram shows the fuse in the 3-pin plug.



The diagram illustrates the internal wiring of a hair dryer. On the left, a three-pin plug is shown with a fuse. A connecting cable leads from the plug to the hair dryer. The hair dryer is shown in a cutaway view, revealing a fan, a heating element, and a motor. A separate diagram shows a cylindrical fuse with the label '5A' on it.

a) What is the meaning of the label 5 A on the fuse?

b) State 2 properties of the material for the heating element used in the hairdryer. Explain your answers.

c) The hairdryer in the diagram is turned on.

I. Calculate the current passing through the hairdryer.

II. State with reason whether the 5A fuse is suitable to be used in the plug.

Signature:

Name:

Marks:

III. What is the electric energy used by the hairdryer when it is turned on for 8 minutes?

d) You are required to investigate the characteristics of four types of metals to be used as a fuse wire as show in the following table. Explain the suitability of each characteristics of the four types of metals and determine the most suitable metal to be used as a fuse wire. Give reasons for your choice.

Metal Logam	Resistivity Kerintangan	Melting point Takat lebur	Specific heat capacity Muatan haba tentu $\text{J kg}^{-1} \text{K}^{-1}$	Diameter
P	Low	600	900	Big
Q	High	1 200	500	Small
R	High	700	240	Small
S	Low	1 100	390	Big