Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Electricity (High Demand)

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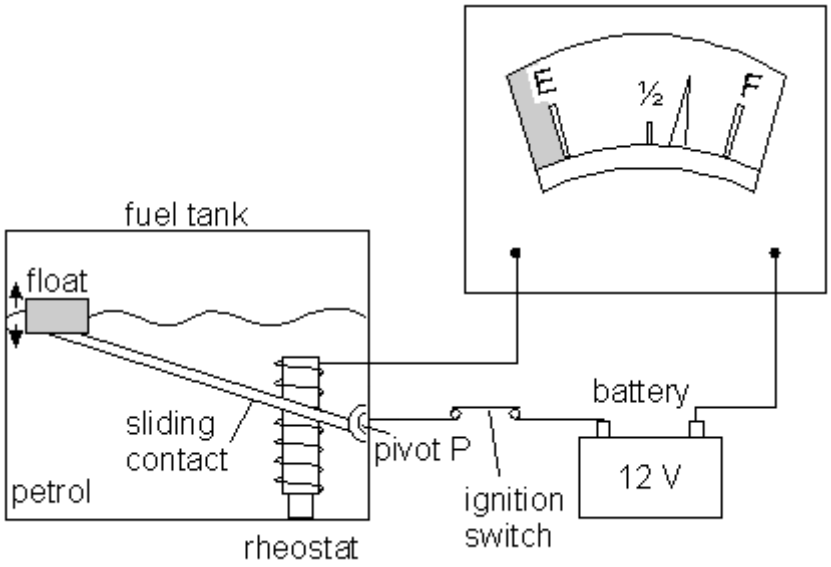
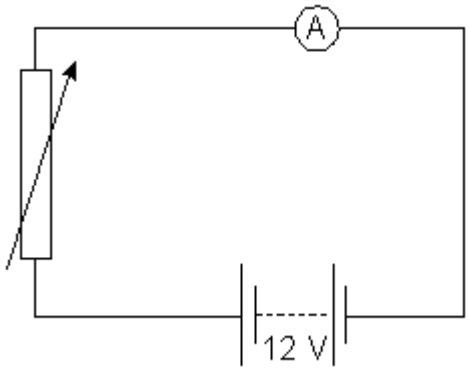
Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

The diagram below shows how one type of fuel gauge in a car works. A sliding contact makes contact with a resistance wire wound in a coil (rheostat). It is connected to a float via a pivot P. When the petrol level changes the circuit resistance changes. This causes the pointer in the fuel gauge to move and show how much petrol is in the petrol tank.



The circuit diagram is shown below.



The petrol gauge is an ammeter. Explain why the reading on the ammeter falls as the petrol is used.

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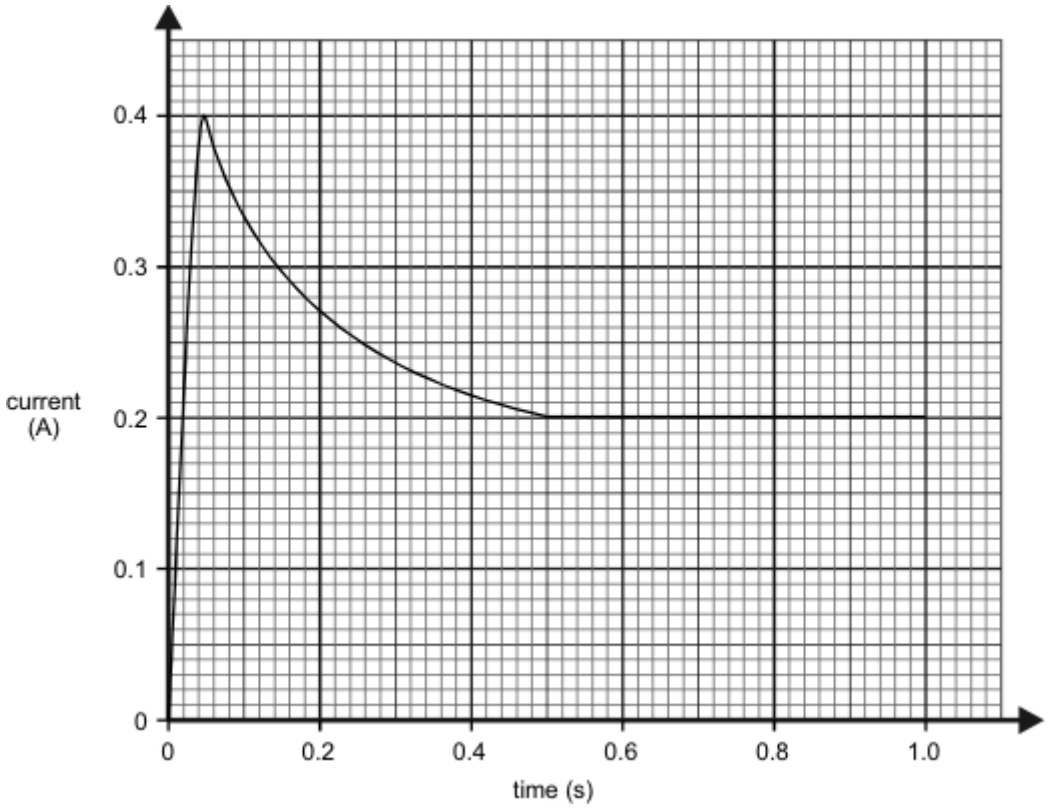
(Total 3 marks)

Q2.

When a mains lamp is switched on it takes 0.5 seconds for the filament to reach its normal operating temperature. The way in which the current changes during the first second after switching on is shown in the sketch graph below. Mains voltage is 240 V.



(a) Calculate the resistance of the filament whilst the lamp is drawing the **maximum** current.

(3)

(b) Describe how the resistance of the lamp changes after the current has reached its maximum value.

(2)

(c) Calculate the **maximum** power taken by the lamp.

(2)

(d) Calculate the power of the lamp in normal use.

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_____

(2)

(e) Calculate the energy used by the lamp in six hours of normal use.

_____

_____

_____

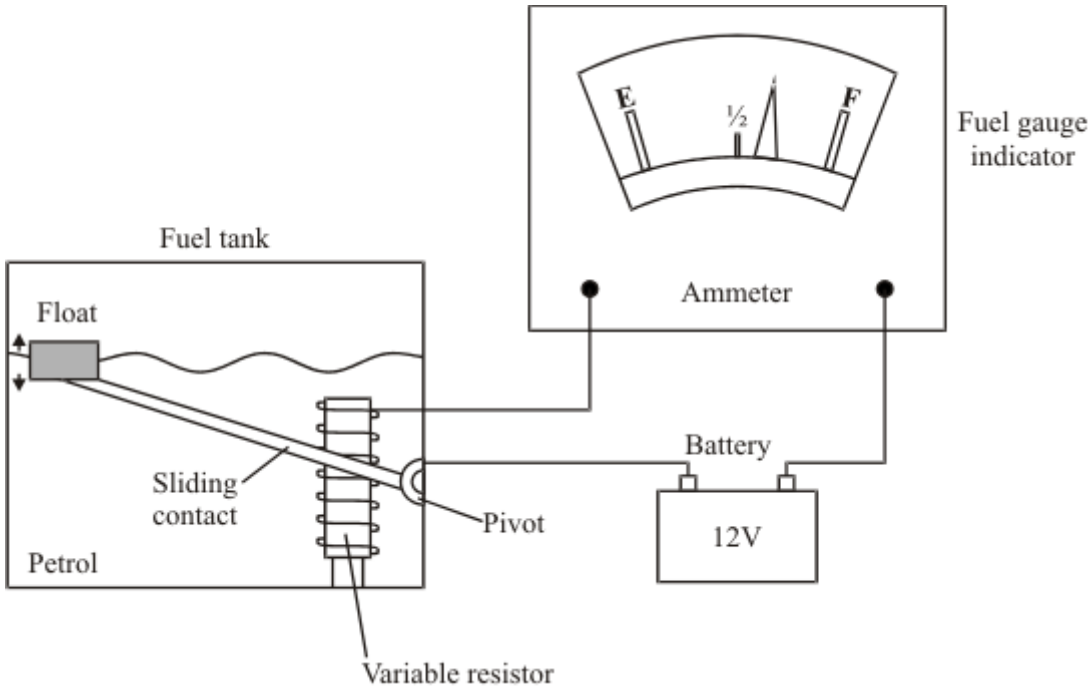
(3)

(Total 12 marks)

Q3.

The diagram shows the fuel gauge assembly in a car.

- The sliding contact touches a coil of wire and moves over it.
- The sliding contact and the coil form a variable resistor.
- The sliding contact is connected to a float via a pivot.
- The fuel gauge indicator is an ammeter.
- When the petrol level changes, the resistance of the circuit changes.
- This causes the pointer in the fuel gauge indicator to move.



(a) Use standard symbols to draw a circuit diagram for the fuel gauge assembly.

(3)

(b) How will the current in the circuit change as the level of petrol in the tank falls?

_____

Explain the reason for your answer.

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_____

_____

(2)

(Total 5 marks)