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

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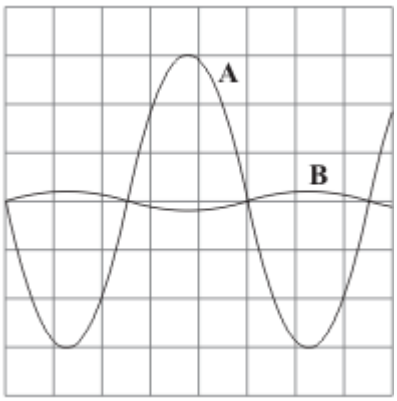
Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Q1.

The diagram shows two oscilloscope traces, **A** and **B**.



Trace **A** shows how the potential difference between the live and neutral terminals of an electricity supply changes with time.

(a) Describe how the potential of the live terminal varies with respect to the neutral terminal of the electricity supply.

_____

_____

(2)

(b) What does trace **B** show?

_____

_____

(1)

(c) Each horizontal division on the oscilloscope represents 0.005 s.

(i) What is the period of this electricity supply?

_____

Period = _____ seconds

(1)

(ii) Calculate the frequency of the supply.

_____

Frequency = _____ hertz

(1)

(Total 5 marks)

Q2.

A set of Christmas tree lights is made from twenty identical lamps connected in series.

(a) Each lamp is designed to take a current of 0.25 A. The set plugs directly into the 230 V mains electricity supply.

(i) Write down the equation that links current, potential difference and resistance.

_____

_____

(1)

(ii) Calculate the resistance of **one** of the lamps. Show clearly how you work out your final answer and give the unit.

_____

_____

_____

_____

Resistance = _____

(4)

(iii) What is the total resistance of the set of lights?

_____

_____

Total resistance = _____

(1)

(b) How does the resistance of a filament lamp change as the temperature of the filament changes?

_____

_____

_____

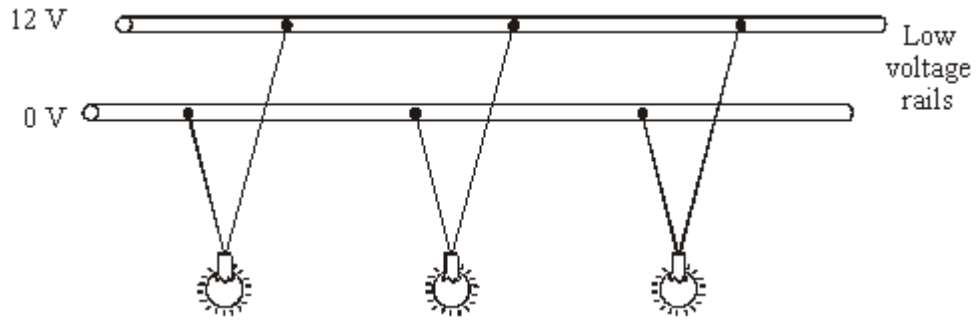
_____

(1)

(Total 7 marks)

Q3.

The diagram shows a 12 volt lighting system. Each lamp has a power of 32 watts.



(i) Write down the equation that links current, potential difference and power.

_____

(1)

(ii) Calculate the input current to the lighting system. Show clearly how you work out your answer.

_____

_____

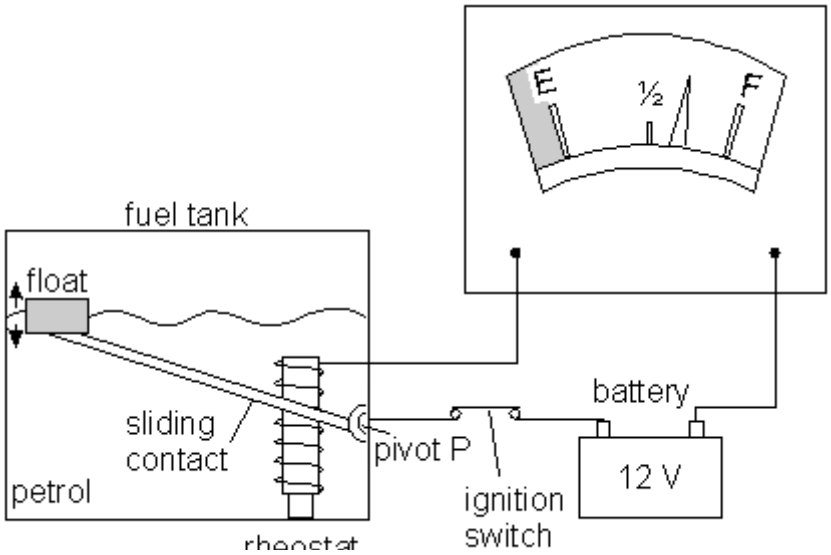
current = _____ A

(2)

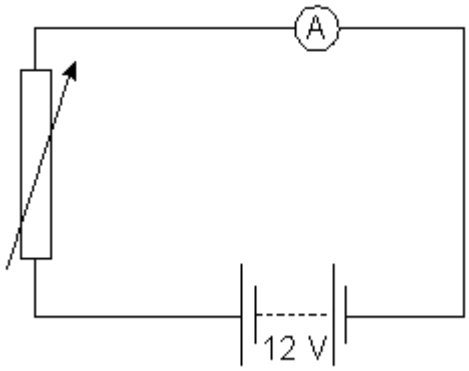
(Total 3 marks)

Q4.

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.

_____

_____

_____

_____

(Total 3 marks)