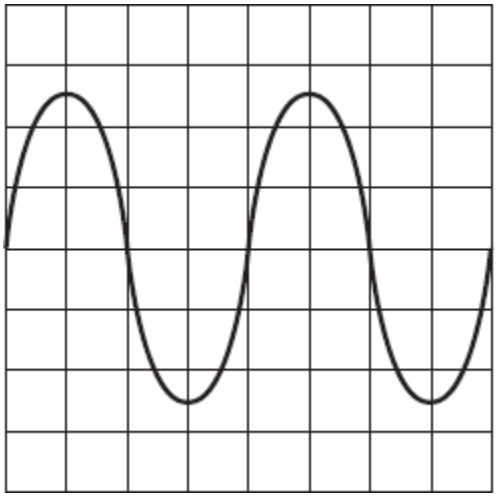
Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Electricity (High Demand)

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

An oscilloscope is connected to an alternating current (a.c.) supply.
The diagram shows the trace produced on the oscilloscope screen.



Each horizontal division on the oscilloscope screen represents 0.002 s.

(a) Calculate the frequency of the alternating current supply.

Show clearly how you work out your answer and give the unit.

_____

_____

_____

Frequency = _____

(3)

(b) What is the frequency of the a.c. mains electricity supply in the UK?

_____

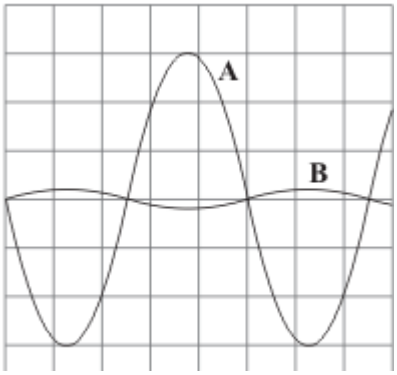
(1)

(Total 4 marks)

Q2.

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

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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)

Q3.

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

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(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?

_____

_____

_____

_____

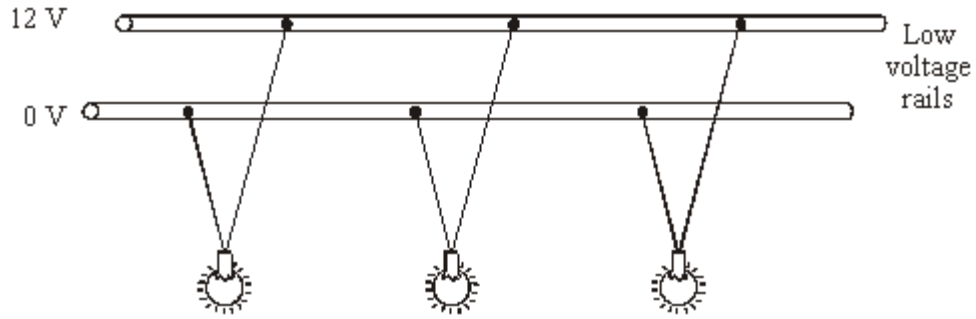
(1)

(Total 7 marks)

Q4.

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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)

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