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

Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Q1.

The following specification is taken from the instruction booklet of a combination microwave oven.

AC voltage	240 V 50 Hz
Power required	
Microwave	1.5 kW
Dual (Roast/Bake)	2.8 kW
Dual (Grill)	2.5 kW
Convection	1.35 kW
Grill	2.3 kW
Output power	
Microwave	850 W
Convection heater	1350 W
Grill heater	1000 W
Microwave frequency	2450 MHz

(a) (i) What is the current when the oven is being used to cook in the dual (roast/bake) mode? Show clearly how you work out your answer.

_____

_____

Current = _____ A

(2)

(ii) Calculate the resistance of this combination microwave oven when it is being used in the dual (roast/bake) mode. Show clearly how you work out your answer and give the units.

_____

_____

_____

Resistance = _____

(3)

(b) What is the percentage efficiency of the oven when it is working in the microwave mode?

_____

_____

_____

Percentage efficiency = _____ %

(2)

(Total 7 marks)

Q2.

(a) The student is using a microphone connected to a cathode ray oscilloscope (CRO).

The CRO displays the sound waves as waves on its screen. What does the microphone do?

_____

_____

_____

(2)

(b) The amplitude, the frequency and the wavelength of a sound wave can each be either increased or decreased.

(i) What change, or changes, would make the sound quieter?

_____

(1)

(ii) What change, or changes, would make the sound higher in pitch?

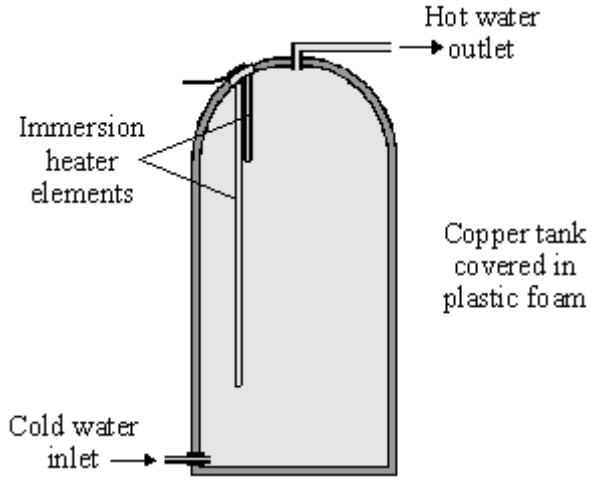
_____

(1)

(Total 4 marks)

Q3.

The diagram shows a type of electric immersion heater in a hot water tank. These hot water tanks are normally found in airing cupboards.



Information on the immersion heater states:

230 V
10 A

(a) (i) What is the equation which shows the relationship between power, current and voltage?

_____

(1)

(ii) Calculate the power of the heater. Show clearly how you get to your answer and give the units.

_____

Power = _____

(2)

(b) (i) What rating of fuse should be in the immersion heater circuit?

_____

(1)

(ii) There are three wires in the cable to the immersion heater. Two of the wires are connected to the immersion heater. The third wire is connected to the copper tank.

Explain the function of this third wire and the fuse in the circuit.

_____

_____

_____

_____

(3)

(c) (i) What is the equation which shows the relationship between resistance, current and voltage?

_____

(1)

(ii) Calculate the resistance of the heater. Show clearly how you get to your answer and give the units.

_____

Resistance = _____

(2)

(Total 10 marks)