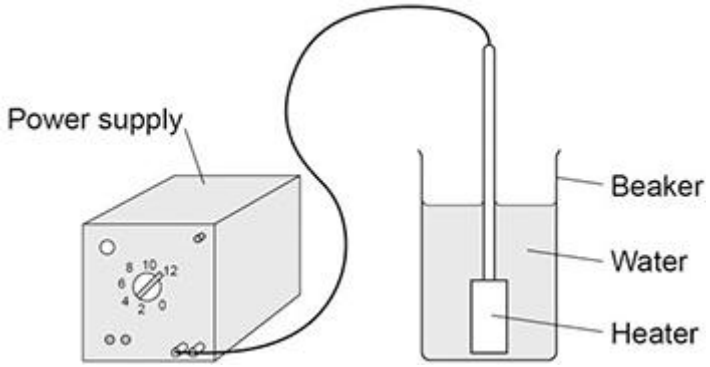
Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

A student determined the specific latent heat of vaporisation of water.

The figure shows some of the equipment used.



(a) The student measured a mass of water and put it into the beaker.

What measuring instrument should the student have used to measure the mass of the water?

Tick (✓) **one** box.

balance ☐

joulemeter ☐

newtonmeter ☐

thermometer ☐

(1)

(b) The power output of the heater stayed the same throughout the experiment.

What type of variable was the power output of the heater?

Tick (✓) **one** box.

Categoric variable ☐

Control variable ☐

Dependent variable ☐

Independent variable ☐

(1)

(c) The student turned on the heater and heated the water until it reached boiling point.

The student continued to heat the water so that it boiled for several minutes.

The mass of the water remaining in the beaker was measured again.

Give **one** way the beaker of boiling water could be moved safely to measure its new mass.

_____

_____

_____

(1)

(d) The mass of water that turned into steam was 0.0090 kg.

The heater transferred 25 200 J of energy to the water to turn it into steam.

Calculate the specific latent heat of vaporisation of water given by the student s data.

Use the Physics Equations Sheet.

Choose the unit from the box.

J	**kg**	**J/kg**

_____

_____

_____

_____

Specific latent heat of vaporisation = _____ Unit _____

(4)

(e) What was a source of error in the student s experiment?

Tick (✓) **one** box.

The transfer of thermal energy from the heater to the water ☐

The transfer of thermal energy from the surroundings to the water ☐

The transfer of thermal energy from the water to the heater ☐

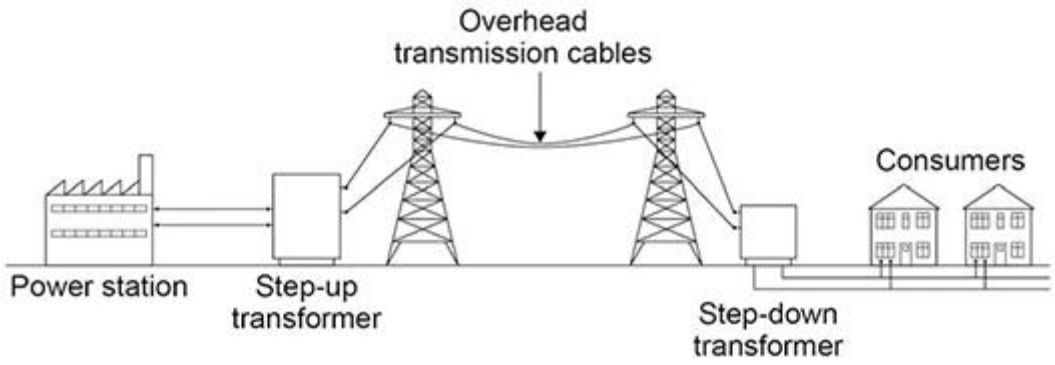
The transfer of thermal energy from the water to the surroundings ☐

(1)

(Total 8 marks)

Q2.

The figure below shows how electricity is supplied to consumers.



(a) Electricity from the power station can be generated using renewable or non-renewable energy resources.

Complete table below to show which energy resources are renewable and which are non-renewable.

Tick (✓) **one** box in **each** row.

Energy resource	**Renewable**	**Non-renewable**
biofuel		
coal		
nuclear		
tides		

(2)

(b) Transformers are used to make power transmission an efficient process.

Complete the sentences.

Choose answers from the box.

Each answer may be used once, more than once or not at all.

charge	**current**	**energy**
potential difference	**resistance**	

The step-up transformer increases the _____ and

decreases the _____.

Using the transformers decreases the _____

transfer from the overhead transmission cables to the surroundings.

The step-down transformer decreases the _____.

(4)

Use the Physics Equations Sheet to answer parts (c) and (d).

(c) Write down the equation which links charge flow (Q), current (I) and time (t).

_____

(1)

(d) The town of Hornsdale in Australia has electricity supplied by a huge battery.

The battery supplies a current of 130 000 A.

Calculate the charge flow from the battery in 5 minutes.

Choose the unit from the box.

coulombs	**newtons**	**watts**

_____

_____

_____

_____

Charge flow = _____ Unit _____

(4)

(Total 11 marks)