Name of the Student:_____
Max. Marks : 11 Marks **Time : 11 Minutes**

Q1.

The table gives information about some methods of conserving energy in a house.

Conservation method	Installation cost in £	Annual saving on energy bills in £
Cavity wall insulation	500	60
Hot water tank jacket	10	15
Loft insulation	110	60
Thermostatic radiator valves	75	20

(a) Explain which of the methods in the table is the most cost effective way of saving energy over a 10 year period. To obtain full marks you must support your answer with calculations.

_____

_____

_____

_____

(3)

(b) Describe what happens to the energy which is 'wasted' in a house.

_____

_____

_____

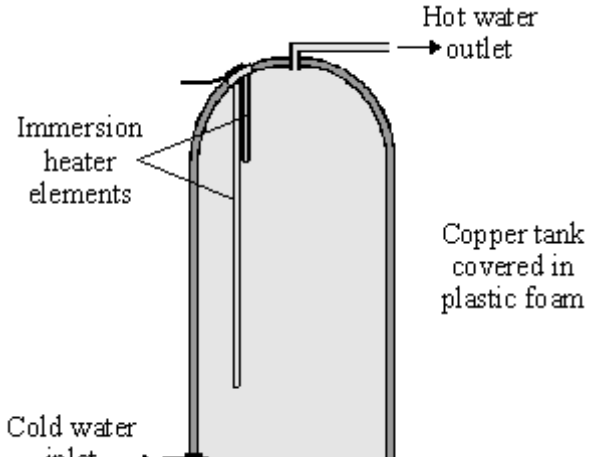
_____

(2)

(Total 5 marks)

Q2.

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) Immersion heaters for hot water tanks often have a switch on them labelled *bath* or *sink.* The *bath* position of the switch has **both** parts of the immersion heater elements in the circuit. The *sink* position has only the short heater element in the circuit.

(i) Explain why the hot water outlet is at the top of the tank, and the cold water inlet is at the bottom of the tank.

_____

_____

_____

(2)

(ii) Explain how the *sink* position for the immersion heater is able to save energy.

_____

_____

_____

(2)

(b) The copper tank is surrounded by plastic foam to minimise energy loss.

Explain why a pale, shiny surface to the foam also helps to minimise energy loss.

_____

_____

_____

(2)

(Total 6 marks)