

Name of the Student: _____

Max. Marks : 11 Marks

Time :11 Minutes

Mark Schemes

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)

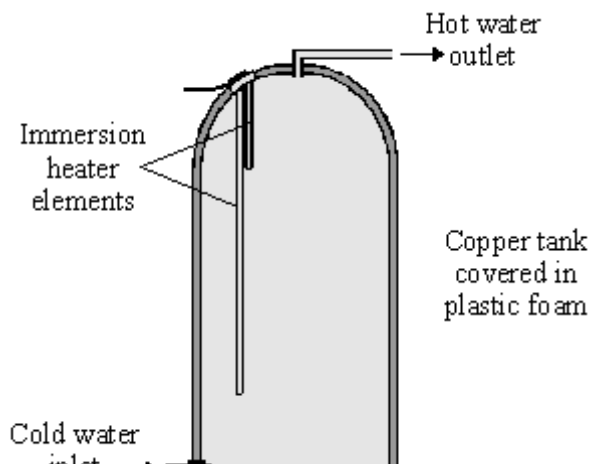
- (b) Describe what happens to the energy which is 'wasted' in a house.

(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)