Mark scheme

Question			Answer/Indicative content	Marks	Guidance
1			**First check the answer on the answer line** **If answer = 6 (J) award 3 marks** (useful energy =) efficiency x input energy or 0.4 x 10 ✓ (useful energy =) 4 (J) ✓ (wasted energy = 10 - 4 =) 6 (J) ✓	3 (AO 1.2) (AO 2.1) (AO 2.1)	**ALLOW** 4 (J) for 2 marks (wasted proportion of energy = 1 - 0.4 =) 0.6 ✓ (wasted energy =) 0.6 x 10 ✓ (wasted energy =) 6 (J) ✓ **Examiner's Comments** Many candidates correctly calculated 4 J (the useful energy) but then did not subtract it from 10 J to determine the energy wasted. Some high-scoring candidates correctly subtracted 0.4 from 1 to give the proportion wasted, and successfully used that value to find the energy wasted.
			Total	**3**	
2		i	**FIRST CHECK THE ANSWER ON ANSWER LINE** **If answer = 8 (A) award 3 marks** Current = power ÷' p.d ✓ (Current =) 1840 ÷ 230 ✓ (Current =) 8 (A) ✓	3 (AO1.2) (2 × AO2.1)	Rearrangement of the given equation **Examiner's Comments** This question was well answered. The majority of the candidates correctly worked out the current. A significant minority of candidates multiplied the power by the potential difference.
		ii	**Any two from**: The power would be higher ✓ The water would heat up quicker ✓ (So) more water could be heated (in the same time) ✓	2 (AO3.2a)	**IGNORE** Higher currents are more dangerous **IGNORE** it would get hotter **Examiner's Comments** Many candidates stated that the temperature of the water would increase at a greater rate. Other candidates also mentioned that the power would be greater. For this type of question two distinct suggestions should be made.
			Total	**5**	