Question number	Answer	Notes	Marks
8 (a) (i)	385 (J);		1
(ii)		reverse calculation e.g. calculating a voltage or charge gains 1 mark max.	
	substitution into E=QV; evaluation to at least 2 s.f.;		2
		if no other mark given allow 1 mark for 10^6 or 1000000 seen in working	
	e.g. (E =) 385 × 180 000 (E =) 69 000 000 (J) / 69 (MJ)	allow ecf from 8(a)(i) value	
(iii)	MP1. idea of <u>energy</u> wasted;	allow not 100% efficient, <u>energy</u> lost	2
	MP2. appropriate mechanism;	e.g. heat in wires	
8 (b) (i)	charge = current × time;	allow abbreviations e.g. Q = I × t or rearrangements	1
(ii)	substitution; rearrangement; evaluation;	ignore not converting time to seconds until evaluation	3
	e.g. 180 000 = current x (110 x 60) (current =) 180 000 / (110 × 60) (current =) 27 (A)	allow 27.3, 27.27…	
		1600, 1640, 1636 etc. gain 2 marks	
		if no other mark given allow 1 mark for 60 seen anywhere in working (attempt to convert to seconds)	

Total 9 marks