Question number	Answer	Notes	Marks
1 (a) (i)	A		1
(ii)	B		1
(b) (i)	C		1
(ii)	nearest above (DOP)		1
(iii)	Comment on device – (plastic) insulator / does not conduct; Comment on user - no risk of shock / electrocution;	 (double) insulated / no current (through) / cannot become live No electricity reaches user / person cannot touch live parts	1 1

Question number	Answer	Notes	Marks
2 (a) (i)	voltage = current x resistance	ACCEPT equivalent rearrangement ACCEPT suitable abbreviations e.g. V = I x R REJECT V = I x □ REJECT equation 'triangles' alone	1
(ii)	1.2 x 4.0; 4.8 (V);		2
(iii)	12 – 4.8; 7.2 (V);	ECF on (ii)	2
(iv)	E = VIt (NO MARK) time conversion to seconds (5.0 x 60); 7.2 x 1.2 x (5.0 x 60); 2600 (J);	ECF on (iii) Allow 2592 or 2590 ALLOW 2500/2520 (J) for full marks (using 7 V) ALLOW 42 (J) or 43.2 (J) for 2 marks (using 5 mins)	3
(v)	idea of energy losses rate of energy loss = rate of energy supply (at steady temp)	 NB this statement alone scores (2) as it includes idea of energy loss	2

Question number	Answer	Notes	Marks
2 (b) (i)	X – series, Y – parallel	BOTH REQUIRED for the mark	1
(ii)	THREE SUITABLE, e.g.- series advantage – fewer wires; series advantage – lower resistance values; series disadvantage – one fails, circuit fails; series disadvantage – no independent control;	ALLOW REVERSE ARGUMENTS in terms of parallel circuits but do not award the same mark twice IGNORE refs to efficiency ACCEPT correct answers that link to battery voltage / current, etc	Max 3