

Question number		Answer	Notes	Marks
2 (a) (i)		Power (rating) or watt(s); Rate of energy transfer / joule per second / J/s ;	Ignore equation from p2: <u>energy (transferred)</u> time (taken)	2
(ii)		Any two of MP1 Idea of a fault causing a hazard; MP2 Idea that current goes to Earth / not to user; MP3 Idea of fuse action, e.g. blows /melts / breaks circuit; MP4 idea of a low resistance path;	Ignore: current surge, fire Allow: <ul style="list-style-type: none"> prevents electrocution / shock flow of charge as current current to ground Ignore: electricity / energy goes to earth Allow case at earth potential	2
(b) (i)		Agree / disagree - no mark Any three of MP1 Statement of an appropriate equation e.g. power = current x voltage; MP2 At least one appropriate current value calculated, e.g. 2.92 (A) or 0.13 (A); MP3 Idea that fuse rating must be more than working current; MP4 EITHER Idea that 2.92 A is close to 3A, making 3A fuse a poor choice for soldering iron 'B'; OR Idea that 3A is much larger than 0.13 A, making 3A fuse a poor choice for soldering iron 'A'	Allow abbreviation and rearrangements e.g. $P=IV$, $I=P/V$ Ignore s.f. $30 \div 230 = 0.13$ (A) $70 \div 24 = 2.9$ (A) Allow $70 \div 230 = 0.30$ (A) Allow reverse arguments, e.g. "lower value fuse would melt" Allow ecf from incorrect calculation	3

(ii)		<p>Any three of</p> <p>MP1 primary AND secondary (coils);</p> <p>MP2 (soft) iron core;</p> <p>MP3 primary/input (coil) has more turns;</p> <p>MP4 further structural detail e.g. insulated wire, core laminations;</p>	<p>May be shown on a labelled diagram Ignore equations</p> <p>Allow input and output (coils) Ignore: magnet</p> <p>Allow:</p> <ul style="list-style-type: none"> • reverse argument • clear indication of relative turns on diagram (judge by eye) • appropriate numbers 	3
------	--	--	---	---

Total for question 2 = 10 marks