

Question number	Answer	Notes	Marks
4 (a)	correct symbols for all components; components connected in a series circuit;  ammeter in series with lamp; voltmeter in parallel with lamp;	ignore ammeter and voltmeter	4
(b) (i)	all points plotted correctly;	within half a small square	1
(ii)	curve passes within half a small square of all points;	by eye	1
(c) (i)	idea of taking more data at different voltages;		1
(ii)	any TWO from: MP1. current (in filament) heats up the filament;  MP2. resistance changes with temperature; MP3. idea that change of resistance affects gradient (of graph);	allow idea that higher voltage will increase the temperature of the filament condone 'lamp' for filament  allow 'increasing resistance decreases current for the same voltage' for MP2 and MP3	2

Total for Question 4 = 9 marks