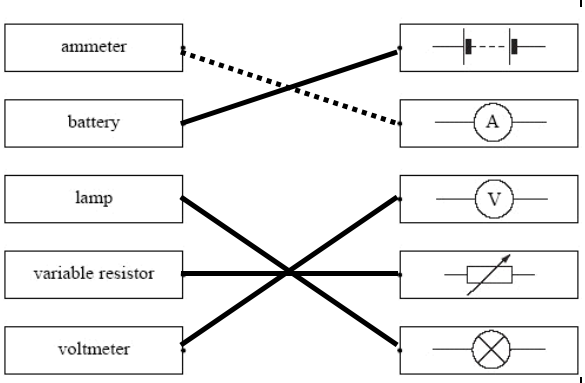
Question number	Answer	Notes	Marks
1 (a)	 all 4 lines;;; any 2 lines;; any one line;	(dotted line is given)	3
(b) (i)	light dependent resistor / LDR;	allow • photo sensitive resistor • light sensitive resistor allow recognisable spellings	1
(ii)	thermistor;	allow recognisable spellings total marks = 5	1

Question number	Answer	Notes	Marks
2 (a)	any suitable from: e.g. • asteroid; • meteor(ite); • (artificial) satellite; • a moon; • comet; • named planet; • dwarf planet e.g. Pluto; • neutron star; • white dwarf; any two suitable from: • (the) Universe; • galaxy; • solar system; • star / Sun; • named planet (1); • named planet (2); galaxy;	accept appropriate correct answers planets: • Mercury • Venus • Mars ‘Sun and star’ is 1 mark only planets should be gas giants: • Jupiter • Saturn • Uranus • Neptune	4
(b) (i)	gravitational force / gravitational pull / (force of) gravity;		1
(ii)	B;		1
(iii)	single straight arrow directed towards the Sun;	judge by eye	1
(iv)	B;	total marks = 8	1

Question number	Answer	Notes	Marks
11 (a)	9100 (N)		1
(b) (i)	F = m x a;	accept standard symbols or in words or rearranged	1
(ii)	substitution and rearrangement; evaluation; e.g. (a =) 400/910 (a =) 0.44	-1 for POT error allow 0.4, 0.43956044 0.43 gains 1 mark only	2
(c)	any three from: MP1. speed increases; MP2. so drag {starts to act / increases}; MP3. downward forces increase; MP4. (hence) acceleration decreases;	ignore references to the initial acceleration award 1 mark for mention of terminal velocity if no other mark awarded allow air resistance / friction increases allow unbalanced force decreases	3
(d)	acceleration increases; with any one from: • weight decreases / downward force reduces; • unbalanced force increases; • mass decreases;	total marks = 9	2

Question number	Answer	Notes	Marks
12 (a) (i)	94;		1
(ii)	any two sensible suggestions: e.g. • to make results (more) reliable; • to produce an average reading; • to identify anomalous results; • because there may have been a temperature change; • because there may have been friction in the syringe;	ignore references to keeping it a fair test	2
(b) (i)	any sensible suggestion: e.g. • reduced scale gives fuller use of the grid; • because the lowest value of p or V is 50/eq; • because p or V cannot be zero;	allow RA ignore there are no values below 40	1
(ii)	idea of straight line having an even distribution of points about the line; all points seem to be on the curve;	no mark for a bald 'it's the curve' or 'it's the line' allow points are very close to the curve	2
(iii)	any sensible suggestion; e.g. • keep the temperature constant • ensure no air gets into/out of the syringe/eq • keep apparatus exactly the same • wait for same time after adding/removing loads to take the volume reading		1
(iv)	any two from: MP1. increase sensitivity/resolution of instruments; MP2. take reading(s) to fill in the middle of the graph/eq; MP3. take reading(s) to extend the range of the graph;	ignore references to parallax error / accuracy allow take readings with greater precision/eq	2