edexcel

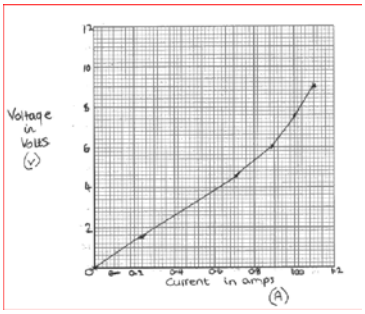
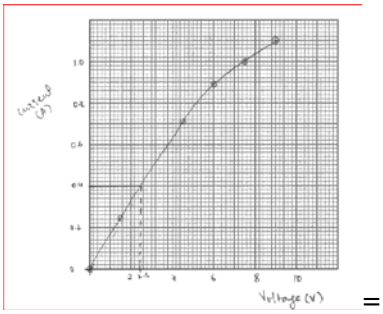
Mark Scheme (Results)

January 2015

International GCSE Physics (4PH0 1P)

Question number	Answer	Notes	Marks
4 (a) (i)	6.1 (m);		1
(ii)	any two from:- MP1. (on distance-time graph,) flat line means zero speed / eq MP2. (so) count when slope is zero; MP3. 7 (times);	allow flat or horizontal for zero slope	2
(b) (i)	(average) speed = <u>(total) distance moved</u> / (total) time taken	allow defined symbols ignore 'triangles'	1
(ii)	Substitution; Calculation; Matching unit; e.g. Average speed = <u>6.1</u> / (7x 60) = 0.0145 = 0.015 m/s	allow both substitution and calculation marks for a correct value without working allow 6.1, or ecf for distance 7 for time allow alternatives with compatible unit, e.g. 1.45 cm/s OR 1.5 cm/s 14.5 mm/s OR 15 mm/s 0.87 m/minutes 87 cm/minute 870 mm/minute Allow for 1 mark 6 / 7 or 0.9	3

Total 7 marks

Question number	Answer	Notes	Marks
10(a)	any 3 mistakes identified from MP1. cells are connected with wrong polarity; MP2. ammeter is connected in parallel (with wire); MP3. voltmeter is connected in series (with wire); MP4. circuit has not got a switch;	allow RA for any MP allow idea that meters should be swapped for two marks (MP2 and MP3)	3
(b) (i)	suitable scale chosen (> 50% of grid used); axes labelled with quantities and unit; plotting correct to nearest half square (minus one for each plotting error) ;; line of best fit through zero;  = 4 not curve mark  = 5	only scales in 1,2,5,10 or 8 acceptable orientation unimportant points must be shown clearly i.e. two plotting errors = no marks for plotting i.e. smooth curve I: 0.0, 0.2, 0.7, 0.8, 1.0, 1.1 V: 0., 1., 4., 6., 7., 9.	5
(ii)	0.40 A	range 0.39 A to 0.41 A	1
(iii)	One of - MP1. Temperature (of wire) was not constant; MP2. Resistance (of wire) was not constant;		1

Question number	Answer	Notes	Marks
10 (b) (iv)	Any four of -	ignore all details about the circuit already given	4
	MP1. instrument to measure temperature;		
	MP2. means to maintain constant temperature (of wire);	e.g. water bath, switch off and allow wire to cool	
	MP3. use of V = IR;	V ɑ I	
	MP4. idea of repeating / averaging (at same temperature);	obtain a range of values (of V, I)	
	MP5. idea of additional (interpolated) points;		
	MP6. use linear part of the graph;	Allow reference to candidate's graph, e.g. current below 0.6 A	
	MP7. use of gradient;	Orientation unimportant	

Total 14 marks

Question number	Answer	Notes	Marks
13 (c) (i)	KE = ½ mv^2;	Words or symbols	1
(ii)	Conversion to kg; Substitution into correct equation; Rearrangement; Evaluation; e.g. 45 g = 0.045 kg (or 1 kg = 1000 g etc) $36 = ½ \times 0.045 \times v^2$ $v^2 = \frac{2 \times 36}{0.045}$ (= 1600) 40 (m/s)	allow • 1000 seen • steps in any order • correct answer with no working for full marks • up to 3 marks for use of 45 kg →1.26 (m/s)- working must be seen	4
(iii)	Any one of- • (Hit the ball transferring) more energy; • (Hit the ball with) more velocity; • (Hit the ball with) more speed; • (Hit the ball with) more force;	Ignore • harder • power Allow • momentum • keep contact for a larger part of the swing • go to a place where g is less (e.g. on the moon) • hit ball at a steeper angle / vertically (e.g. use a more lofted club)	1

Total 12 marks