IGCSE PHYSICS

Paper 0625/01
Multiple Choice

Question Number	*Key*	*Question Number*	*Key*
1	**A**	21	**B**
2	**C**	22	**C**
3	**C**	23	**C**
4	**B**	24	**B**
5	**B**	25	**B**
6	**D**	26	**C**
7	**A**	27	**B**
8	**A**	28	**B**
9	**B**	29	**D**
10	**A**	30	**A**
11	**B**	31	**C**
12	**D**	32	**C**
13	**B**	33	**D**
14	**D**	34	**C**
15	**C**	35	**A**
16	**A**	36	**A**
17	**B**	37	**C**
18	**A**	38	**D**
19	**D**	39	**C**
20	**D**	40	**D**

General comments

There was an increase to 11005 in the number of candidates taking the paper this year, and their mean score of 31.143 was close to the target to 30.000. The standard deviation was 6.236.

With a facility of 90% or higher, several items were found easy, namely **1**, **5**, **9**, **11**, **13**, **24**, **28**, and **34**. Items **8**, **16**, **20**, **21** and **37** proved the most taxing, with a facility of 60% of lower.

Comments on individual questions

(Percentages in brackets after an item number show the proportion of candidates choosing the correct response).

The measurement item **1**(94%) was a well-answered entry question. In item **2** (68%) however, 21% opted for the most likely distractor D, missing the fact that the speed was not constant. Nearly one in ten candidates chose A in item **3** (88%), incorrectly dividing speed by time to calculate distance, and a similar proportion selected A in item **4** (80%), perhaps having misread the question (the word ‘incorrect' was in bold

type, and candidates should be warned to look for its occasional use where unavoidable). Item **5** (92%) was not problematical, and item **6** (86%) was also well answered, A being the most popular distractor once again in this latter question. Option B was the favourite error in the equilibrium item **7** (79%), and item **8** (60%) showed that more than one in five believed that two of the models would fall over, presumably from applying apparent common sense rather than referring to the exact position of the Centre of mass relative to the far right edge of the relevant tyre. Item **9** (94%) presented little difficulty. In item **10** (80%), 12% chose B, perhaps believing that the power exerted by the labourer was not related to the actual work done in the time, but rather to his personal strength.

The concept of pressure was generally well understood, item **11** (90%) and item **12** (89%) producing many correct responses; the only discernible pattern of misunderstanding was the popularity of A in item **12**. Similar strong performance was shown in item **13** (92%), but item **14** (74%) indicated that almost a fifth of candidates believe that molecules expand on heating. In item **15** (80%), mainly A attracted those who were unsure about fixed points. Item **16** (41%) proved a big challenge for many; D was very popular (the 'opposite' to the correct answer) and B also attracted a fair proportion - clearly the concept of thermal capacity is not well understood by many candidates. It was distractor D in item **17** (74%) which lead one in five candidates astray - possibly they remembered a bimetal strip, and in item **18** (62%) B and D proved attractive responses, suggesting lack of familiarity with convection currents initiated by cooling rather than heating. With 74% facility, item **19** caused 16% to choose A - the air gap was known to be significant, but for the wrong reason. Item **20** (60%) proved harder, with distractor C most popular, followed by A.

The least well answered item on the paper was item **21** (36%) - all distractors worked well, particularly D, indicating a need to concentrate on basic wave refraction. Candidates were more successful with item **22** (72%), although A was the choice of 17%. Better answered still was item **23** (80%), understandably with option B being the most popular error. Item **24** (94%) was straightforward, but item **25** (67%) showed all distractors working well. No particularly significant error trends were shown in item **26** (84%), item **27** (83%) or item **28** (95%), but in item **29** (82%), C was clearly the most common incorrect response (chosen by 12%). In item **30** (77%) it was the l.d.r. which almost one in eight believed to be a component used to store energy. The circuit item **31** (81%) showed A as the most popular distractor (9% of responses), and in item **32** (80%) D was preferred (also by 9%), candidates presumably believing that current would be 'used up' by the resistors. Item **33** (72%) caused more than one in five to opt for C, but item **34** (95%) was found easy. Similarly item **35** (86%) and **36** (89%) were well answered. The more challenging item **37** (40%) caused much more difficulty - 40% also opted for D, believing the anode to be heated. In item **38** (84%), the most common error by far was C, this being the last atom in the series, and a logical choice for a guess. Item **39** (71%) caused nearly one in five to choose B (β-particles), but the final item **40** (85%) was generally answered correctly.

PHYSICS

Paper 0625/02

Core

General comments

Some very competent candidates attempted this paper, with only a very few extremely weak ones. Most candidates scored something on each question, and there were no questions which proved too hard for all candidates. Generally, where problems existed, it was due to poor understanding rather than total ignorance.

Numerical work was usually adequately carried out, where the candidate knew the underlying Physics. However, it needs pointing out that there were some instances where the candidate showed no working, even in cases such as **Question 9**, where there was a clear instruction to do so. This meant that if the candidate put the wrong answer, the marker could not award any marks at all for any correct steps taken on the way to the incorrect answer. This has been pointed out on previous occasions, but some candidates chose to ignore the advice. Even though poor use of units is not penalised too heavily on this paper, it is an important aspect of all sciences, and it was pleasing to see that most candidates were careful in this matter.

As has been reported on previous occasions, the standard of handwriting was sometimes very poor. There is no penalty for this, nor for poor English, but if the marker cannot work out what the candidate is trying to say, as is sometimes the case, marks cannot be awarded.

Comments on specific questions

Question 1

(a) Some candidates could relate their explanations clearly to area and pressure, but a sizeable proportion used the word force in place of pressure, or talked about the board spreading the pressure.

(b) (i) (ii) There were an awful lot of exploding balloons amongst the answers! What was wanted was what happened before the balloons got to the point of exploding. Quite a few candidates didn't spot that this was a pressure question, and answered in terms of the balloon rubber getting softer or even melting.

(c) There were really very few convincing answers to this part, and hardly any realised that pressure is caused by the bombardment of the molecules on the **walls of the pump**.

Question 2

Most candidates could cope with this very well. There was a handful who could not measure correctly, and some who insisted on attempting the calculation, but mostly good marks were scored.

Question 3

This was a slight change from the usual approach, but candidates usually coped very well. There were some who could not recall the D, M, W relationship, but most knew how to calculate density. Some wrote the units as cm^3/g, for some reason.

[$2.3\ g/cm^3$]

Question 4

Very few could identify all four forms of energy possessed by the falling fruit, and many thought that PE increases and KE decreases. Despite this, most candidates scored several marks on this question. The energy stored in the person eating the fruit was well known as chemical, although a few wrote internal.

Question 5

Expansion does not seem to be a topic, which was really understood by many. Most could score one or two marks, but few scored all 4. It was common for candidates to think that the **molecules** expanded, and very few explained that it was their separation, which increased. Many candidates were confused between examples of **uses** and examples where expansion is a **nuisance**. Quite often the two were interchanged. Any suitable examples were rewarded, including some, which were quite imaginative!

Question 6

(a) This was generally very poorly answered, as is often the case with questions on waves. If there is an area of the syllabus needing more teaching time, surely this is it. It was clear that most candidates had some idea of what wavelength is, but many scored no marks because the marking on the diagram was so casual and/or unlabelled (so the marker didn't know whether their lines referred to (i) or (ii)). Similarly, for most candidates, it was almost impossible to tell what their answer to (ii) was. It is a common fault at this level for candidates to be very sloppy about drawing on a diagram, in a way they wouldn't dream of being when doing a calculation.

(b) The descriptions of how to use a stopwatch to find the frequency were usually very poor.

Question 7

(a) This was intended to test refraction without dispersion. Even though the incident ray was clearly stated as blue, many showed dispersion at some point on their diagrams. Most knew that the ray would be bent downwards at the first surface, but what happened to it thereafter had many variations. A large proportion showed the ray being bent up again at the second surface.

(b) Diffraction was almost as popular a choice as dispersion in part **(i)**. In parts **(ii)** and **(iii)**, it was clear that, despite the desire to show dispersion in (a), where it should not have been, in (b) there were very few who knew the colours at the extremes of the spectrum. There were probably more who got the correct colours, but the wrong way round, as there were who answered correctly. Correct colours interchanged scored just 1 of the 2 marks. Virtually every colour imaginable, including black and white appeared on one script or another, but such a large proportion included blue in place of violet, that it seems this is being taught in some Centres. Why? Out of fairness to such candidates, blue and purple were both accepted as correct alternatives to violet.

Question 8

(a) This question was generally poorly answered. Very few could clearly define the north pole of a magnet in terms of the end pointing N when freely suspended. Large numbers referred to the *side* of a magnet, which was ambiguous. Many described it as something which attracted a S pole.

(b) Most realised that the force would be repulsive.

(c) It was pleasing to see how many could answer both parts of this correctly. Few thought the magnetism would be retained in (ii).

Question 9

(a) Most identified the substance correctly as strontium, but the explanations were often less than convincing. Anything, which indicated that it was because it had the longest half-life or decayed most slowly would have scored the mark.

(b) As usual, the graphs were almost universally badly drawn. Very few candidates took real care, either with locating the points or with drawing the line. As a result, very few candidates scored all 4 marks for plotting the graph. Fortunately for many of these, the acceptable range for answers to (iii) was sufficiently wide for them to score the mark. Some threw away the final mark for the question by failing to obey the instruction to show clearly on the graph how they obtained the answer. A lot of others clearly had no idea how to find the half-life from the graph.

[8 days±0.5]

Question 10

In recent years, there have been a number of questions about cathode rays, and it would be hoped that this would have encouraged good answers to this topic. There is some evidence that this might be the case in part **(a)**, as many candidates scored good marks, although for many others, there seemed to be a lot of guessing. Parts **(b) and (c)**, though, were very poorly answered. The diagrams were mostly complete nonsense, with any marks scored almost fortuitously, and very few could give an indication for the vacuum in the tube.

Question 11

On first sight, this question looks to be quite daunting. In fact, it was pleasing how many could answer it very effectively and score good marks. Of course, there were weak candidates who scored poorly, but it was rare for a candidate to score less than half marks, and many scored full marks on the question. There was no attempt to test units in this question, merely the ability to apply knowledge of speed to a “real” situation. It was good to see how many could think their way clearly through the question. Part **(d)** was one area where even some good candidates lost marks, because they didn’t know that the average speed is found by dividing the total distance by the total time.

[25 m, 30 m/s, 20 m/s]

Question 12

This was usually well done, which is reassuring, since the question was about electrical safety.

PHYSICS

Paper 0625/03

Paper 3

General comments

The level of responses seen seemed very typical of past experience. The range of marks scored was 4 to 76 out of 80. The response curve seemed very normal though perhaps a little flatter than might have been expected. Significant numbers of candidates scored less than 14 marks, which probably means they should not have been entered for this paper. Scripts in the high 60's and 70's, of which there were reasonable numbers, showed an exceptional level of knowledge, understanding and application to unfamiliar circumstances.

All the Examiners reported that all questions produced a fair spread of marks with full-mark answers being seen for every question. There were therefore no doubts about the accessibility of the paper. The percentage score varied widely from question to question, the highest being **Question 1** and **Question 11** and the lowest being **Question 9** and **Question 2**.

There was little or no evidence to suggest that lack of time had resulted in lower marks nor was it felt that command of English reduced marks in all but a handful of cases. Where candidates were clearly searching for the correct word or phrase every effort was made to be sympathetic to the candidate, although this latitude could not be extended to technical terms.

As always questions involving calculation scored well, especially with the better candidates.

Comments on specific questions

Question 1

(a) This was a very easy 3 mark starter designed to give candidates confidence. However some numbers of candidates misread the scale on the graph and incorrectly identified the point 8, 12 thereby losing the first mark but not necessarily subsequent ones because a carry-forward error was allowed.

(b) Generally correct although again further graph misreads often reduced the mark from 1 to 2. A few gave wrong units with m/s the most common.

[1.5 m/s^2]

(c) The vast majority simply worked out the area of a triangle and gave an answer of 30 m, hence scoring only 1 of 2 marks. The significance of the curve and the word "estimate" was not picked up by other than a few very good candidates.

[24 m to 28 m]

(d) Generally well answered, but a few wrong units.

[4800 N]

(e) Many mixed up answers in terms of a first bus and a second bus, the bus starting at constant speed, the bus decelerating and various other wrong ideas. However many scored two marks usually for more passengers and going uphill.

Question 2

The good candidates and those who had been taught vector addition well had little difficulty in scoring 5 or 6 marks. Some of these lost a mark because they guessed or measured angles badly and so the resultant was outside the limits set. Some gave the scale as 1:1 or 1:2 with no units, which was not acceptable. Another common error was to give the resultant direction as downwards. For those with little idea where to start many simply copied the printed diagram which gained no credit, but some scored two marks for a correct scale and an upward resultant. The use of North and South was not acceptable unless qualified by a secondary diagram, indicating north as up the paper. In spite of the wording of the question some candidates used mathematics well beyond this level to calculate a value. If correct this was marked sympathetically to give some credit.

[7.7 N to 8.1 N]

Question 3

(a) All but a few gave force x distance only and scored 1 mark.

(b)(i) Generally correct though some confused work and power. Wrong units were seen.

[800 J]

(ii) Generally correct, but again some confusion of work and power and wrong units.

[160 W]

(iii) Heat and/or sound were common answers with only a small minority giving the required kinetic energy.

Question 4

(a) Most candidates could state at least one difference but many did not realise that to state a difference required a comparative statement.

(b) This part question was aimed at the A grade candidate and so the majority did not have the required level of understanding. However most answers had a reference to energy needed to break bonds, which scored a compensatory mark. It was also very pleasing to see that a number of good candidates had a good grasp of this situation in terms of potential and kinetic energy and understood that constant temperature meant no increase in the average kinetic energy of the molecules.

(c) Most candidates scored at least one mark for writing down the correct equation even if they could go no further. Those who made no progress tried to include a temperature change in their equation and scored zero. More than half did this routine calculation perfectly and gave a correct unit for their value, but wrong units were more common here than has been the case in the past.

[2400 J/g]

Question 5

(a) Generally well answered with no particular wrong answer given.

(b)(i) and (ii) Quite well answered but answers in terms of longer/shorter thermometers were considered too vague to be allowed credit.

(c) The majority chose the correct equation and found this calculation very straightforward.

[3×10^5 Pa]

Question 6

(a) The general standard of answer was very poor for this simple topic. Many candidates drew either random lines or lines at impossible angles. Often the violet was refracted less than the red and in other cases the violet ray was wrongly labelled or not labelled at all.

(b) Over half the candidates did this completely correctly and scored all three marks. The usual mistake of using i/r instead of sini/sinr was seen less often than in previous examinations. A number of candidates using the correct equation could not deal with the final step to obtain the angle of refraction.

[25°]

(c)(i) and (ii) Most candidates gave the same correct value in both parts and scored 2 marks.

Question 7

(a) Mostly correct answers.

(b)(i) and (ii) Again mostly correct. Candidates were allowed full credit for C and R marked correctly either on the axis or on a peak and a trough. The usual error was to mark either C or R or both halfway between a compression and a rarefaction.

(c) Only a small minority scored any marks here. Those who correctly stated an oscillation often had this acting transversely.

(d) Very well done by most, but large numbers did not realise that PX was half a wavelength, hence scoring only 1 mark for an answer of 1.7 m.

[0.85 m]

Question 8

(a),(b)(i) and (b)(ii) A high proportion of correct answers with very few incorrect or missing units.

[1.5 A, 8Ω and 6 V]

(c)(i) Surprisingly some candidates thought the lamp would be brighter, though most were correct.

(ii) The majority gave perfect answers for 2 marks.

(d)(i) and (ii) Only about half got both parts correct, others gave a variety of values, some of which appeared to be guesses.

[4Ω and 4Ω]

Question 9

(a) Less than half the candidates scored any marks. The general standard was extremely poor with some diagrams not even resembling a transformer. Very few were fully and correctly labelled with primary coil, secondary coil, iron core, 240 V input and 12 V output. Extremely few worked out the turns ratio which was required for the third mark.

(b)(i) and (ii) Poorly answered in comparison with similar questions on past papers. Many candidates did not state the essential point that the magnetic field from a.c. is constantly changing. Also few stated clearly that the changing field from the primary cut the secondary coil causing an induced e.m.f.

(c)(i) and (ii) Many correct answers but the usual unit confusion between power and energy was evident.

[18 W and 540 J]

Question 10

(a) Poorly answered by the majority although there were a minority of very sound answers. The main problem was that many candidates did not understand the phrase “charging by induction” or confused it with charging by friction. Another group thought the question was about magnetic induction. For some of those who did understand the final step went wrong by removing the rod before the lead.

(b)(i) and (ii) The principles behind these calculations were well understood by most but, as expected they had some difficulty with the powers of ten. This often meant that 2 out of 3 were scored for the correct use of the figures i.e. 20 × 15 and 20 × 10.

[0.3 C and 200 V]

Question 11

The majority of candidates scored very well on this rather easy question. As expected the deflection of the α-particles and β-particles caused a problem. Unacceptable versions included towards N and S and up and down. For γ-rays a dash or just left blank could not be accepted as an answer in either column.

PHYSICS

Paper 0625/04

Coursework

General comments

Once again the candidates at the ***majority of Centres*** were given many opportunities to demonstrate their practical skills using a varied range of tasks from different areas of the specification. Clearly a large amount of good work has been completed by teachers and candidates. The majority of samples illustrated clear annotated marks and comments, which was helpful during the moderation process.

It is pleasing to see that points made from previous reports were noted. Although the following point is still relevant to some of the Centres:

- It should be noted that although Moderators do not expect to see written evidence of Skill C1, they do expect to be provided with details of how candidates achieved the marks awarded.

PHYSICS

Paper 0625/05

Practical Test

General comments

The aim of the examination is to enable candidates to display their knowledge and understanding of practical physics techniques. These include

- graph plotting
- tabulation of readings
- manipulation of data to obtain results
- drawing conclusions
- dealing with possible sources or error
- control of variables
- accurate measurements
- choice of the most effective way to use the equipment provided

The general level of competence shown by the candidates was sound. Very few candidates failed to attempt all sections of each of the questions. There was no evidence of candidates suffering from lack of time. Many candidates dealt well with the range of practical skills tested. Each question differentiated in its own way. The majority of candidates showed evidence of preparation for all the different types of question in the examination. However **Question 2** proved to be straightforward for the majority of candidates, whereas **Question 3** caused many more problems.

Comments on specific questions

Question 1

(a) Most candidates successfully recorded a sensible value for the mass and went on to calculate the average, giving the correct unit.

(b) The height was recorded correctly by most candidates but a significant number then calculated the average thickness wrongly.

(c) The calculation of the volume was usually correct and given with the unit.

(d) Most candidates could calculate the density but some lost a mark by quoting more than 3 significant figures or missing the unit.

(e) Few candidates scored the mark for the estimate. They were expected to realise that the volume of air could not be calculated with accuracy and therefore to give their answer to 1 or 2 significant figure. Most gave 3 or more significant figures. Estimation of answers is a useful skill to learn during the course.

Question 2

(a) The majority of candidates knew the symbols for the circuit diagram and drew a correct circuit.

(b) and (c) The current and voltage readings were usually recorded well with currents to at least 2 decimal places and voltages to at least 1 decimal place. Some candidates carelessly confused the current readings with the voltage readings while others gave readings that were clearly much too large. (This was possibly due to taking a reading in mA then writing the unit A). Some candidates lost the mark for units due to missing them out. Some others failed to give their final answers for the resistances to 2 or 3 significant figures.

Question 3

(a) Candidates were expected to describe (preferably, and most easily for the candidates, with a diagram) checking that the height of the metre rule above the bench was the same at each end. Many did not realise that this simple method was all that was required. Other practical methods involving set squares or spirit levels were of course given credit when correctly described.

(b) – (f) The majority of candidates completed the table correctly but some had difficulty working out the values for 1/d. These values should have been given to 3 significant figures. Candidates must be able to correctly round their answers to the appropriate number of significant figures. Some lost a mark here.

(f) The graph work was disappointing in this examination. Too many candidates chose unsuitable scales or made plotting errors. The best fit lines were often too thick and poorly judged.

(g) – (i) The gradient calculation also lost marks for many candidates. A large triangle (at least half the candidate's line must be seen on the graph and then correctly used to calculate the gradient. This was often done badly, so candidates then lost the final mark for obtaining a final answer for the weight of the metre rule that was outside the (quite generous) range allowed by the examiners.

Question 4

(a) – (k) It was pleasing to see that the standard of work on this optics question was higher than for similar questions in previous years. Many candidates drew a good clear diagram following the instructions with care. Some candidates however seemed to have had little or no experience of this type of work and drew diagrams that were far from what was required, with rays in very obviously wrong positions. The main error here was drawing the positions of I and J outside the block.

(h) – (n) Most candidates measured their lines with care and obtained answers within the small tolerance allowed by the examiners. The refractive index should have been given to 2 or 3 significant figures and with no unit. Most candidates achieved this.

PHYSICS

Paper 0625/06

Alternative-to-Practical

General comments

The aim of the examination is to enable candidates to display their knowledge and understanding of practical physics techniques. These include

- graph plotting
- tabulation of readings
- manipulation of data to obtain results
- drawing conclusions
- dealing with possible sources or error
- control of variables
- accurate measurements
- choice of most suitable apparatus

It is assumed that, as far as is possible, the IGCSE course will be taught so that candidates undertake regular practical work as an integral part of their study of Physics. This examination should not be seen as suggesting that the course can be fully and effectively taught without practical work.

Clearly, some of the skills involved in practical work can be practiced without doing experiments – graph plotting, tabulation of readings, etc. However there are parts of this examination in which the candidates are, effectively, being asked to answer from their own practical experience.

The answers given by some candidates in this examination, point to a lack of practical Physics experience.

Some candidates have a good overall understanding of what is required, backed by personal practical experience and therefore score high marks. Others, obtaining lower marks, appear to have limited experience.

Almost without exception candidates attempted all the questions. The examination appeared to be accessible to the candidates and there was no mark that proved unobtainable. Overall the standard was pleasing.

Comments on specific questions

Question 1

Most candidates coped well with this question.

(a) Most candidates successfully recorded the correct value for the height and went on to calculate the average thickness, giving the correct unit.

(b) The length and width were recorded correctly by most candidates and the calculation of the volume was usually correct and given with the unit.

(c) Most candidates could calculate the density but some lost a mark by quoting more than 3 significant figures or missing the unit.

(d) Few candidates scored the mark for the estimate. They were expected to realise that the volume of air could not be calculated with accuracy and therefore to give their answer to 1 significant figure. Most gave 3 or more significant figures. Estimation of answers is a very useful skill to learn during the course.

Question 2

(a) The majority of candidates knew the symbols for the circuit diagram and drew a correct circuit.

(b) Most candidates knew the units for current, potential difference and resistance. The calculations were usually correct, but some candidates rounded wrongly when giving their answers to 2 or 3 significant figures. A mark was lost unless answers were either both to 2 significant figures or both to 3 significant figures.

Question 3

It was pleasing to see that the standard of work on this optics question was higher than for similar questions in previous years.

(a) Many candidates drew a good clear diagram, following the instructions with care. Some candidates however seemed to have had little or no experience of this type of work and drew diagrams that were far from what was required, with rays in very obviously wrong positions. The main error here was drawing the positions of I and J outside the block.

Most candidates measured their lines with care and obtained answers within the small tolerance allowed by the examiners. The refractive index should have been given to 2 or 3 significant figures and with no unit. Most candidates achieved this.

(b) Many candidates had difficulty, however, suggesting two relevant improvements. Acceptable answers included repeats, greater pin spacing, using thinner pins, using more pins, ensuring that the pins were vertical, avoidance of parallax error when reading the rule (not just a vague reference to parallax).

Question 4

(a) Most candidates gave the correct temperature reading with correct calculations including the unit. The answer '20.4^{o}C' was seen in some cases.

(b) To score the available marks here, candidates needed to write about more heat being lost to the surroundings from Beaker B than Beaker A. There were several approaches that could be taken here and sensible answers were given credit. The most straightforward approach was to comment on the greater heat loss from Beaker B due to much of the heat from the Bunsen burner being lost to the surroundings around the beaker.

Question 5

(a) Candidates were expected to describe (preferably, and most easily for the candidates, with a diagram) checking that the height of the metre rule above the bench was the same at each end. Many did not realise that this simple method was all that was required. Other practical methods involving set squares or spirit levels were of course given credit when correctly described.

(b) The majority of candidates completed the table correctly but some had difficulty working out the values for 1/d. These values should have been given to 3 significant figures. Candidates must be able to correctly round their answers to the appropriate number of significant figures. Some lost a mark here.

(c) The graph work was disappointing in this examination. Too many candidates chose unsuitable scales or made plotting errors. The best fit lines were often too thick and poorly judged.

The gradient calculation also lost marks for many candidates. A large triangle (at least half the candidate's line must be seen on the graph and then correctly used to calculate the gradient. This was often done badly so candidates then lost the mark for obtaining a final answer for the gradient that was outside the range allowed by the examiners.

(d) The marks for the weight were allowed if the calculation was correct, from the candidates' gradient value, and given to 2 or 3 significant figures.