

Moderators' Report/  
Principal Moderator Feedback

June 2011

GCE Chemistry (6CH06) Paper  
Chemistry Laboratory Skills II

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at [www.edexcel.com](http://www.edexcel.com).

If you have any subject specific questions about the content of this Moderators' Report that require the help of a subject specialist, you may find our **Ask The Expert** email service helpful.

Ask The Expert can be accessed online at the following link:  
<http://www.edexcel.com/Aboutus/contact-us/>

Alternatively, you can contact our GCE Science Advisor directly by sending an email to [ScienceSubjectAdvisor@EdexcelExperts.co.uk](mailto:ScienceSubjectAdvisor@EdexcelExperts.co.uk).

You can also telephone 0844 576 0037 to speak to a member of our subject advisor team.

June 2011

Publications Code US027570

All the material in this publication is copyright

© Edexcel Ltd 2011

## Contents

6CH06/1A report	4
6CH06/1B report	8
Statistics	11

## **6CH06/1A**

### **General**

This was the second year that the component has been examined. Teachers have built upon their experience of the scheme and prepared their candidates well for the assessment tasks. Many high total marks were seen by the moderators. In some centres all candidates scored maximum or near maximum marks.

Some centres failed to administer the scheme correctly. The extreme example of this is that a few centres used the old tasks to assess activity b. These are no longer valid so cannot be awarded marks by the moderator. Other centres failed to send the correct sample of work to the moderator, did not include teachers' values with the sample or marked the work in such a way that the award of marks could not readily be followed.

Moderators made great efforts to overcome these failings by contacting centres to try to resolve the issues. Normally once a centre assessor realised his or her mistake rapid action followed to rectify the error. Centre assessors are advised to read this report and the equivalent one for 6CH03.01A.

### **Comments on the administration of the scheme**

Some comments made in the 6CH06/01A report also apply to this scheme.

- Some centres failed to send their work to the moderator by the May 15<sup>th</sup> deadline. The deadline for submission of samples to the moderator in 2012 will again be mid-May.
- It is in the interests of candidates that moderators can follow the award of marks by centre assessors. It is strongly advised that the normal practice of using one tick for each mark awarded is used. This was not always the case from some centres.
- A significant number of centres failed to send the work of the lowest and highest scoring candidate to the moderator if these were not included in the required (asterisked) sample.
- Accuracy marks can only be awarded in activity c tasks, A2C1 and A2C3, by comparing a candidate's actual value with an expected one based on the teacher's completion of the task. For A2C1 and A2C3 the moderator should be supplied with the teacher's values on a copy of the Teacher's Values form. The expected values should be annotated on the candidate's work.

## Assessments

### Activity a(GPC)

There remains confusion in some centres as to the significance of the core practicals or GPC tasks. Comments in the 6CH06/1A report are equally applicable here

Centres may list non-counting assessment tasks as GPC tasks on the record sheet. However those b, c and d tasks for which the mark is included in the total mark should not also be listed as GPC tasks.

It is required that the GPC tasks are actually listed on each candidate's record sheet. Some centres left the GPC section blank but included a list of five tasks that all candidates had completed.

### Activity b Qualitative observation

A2B5 In part (a)(i) it was necessary to record that the blue precipitate was insoluble in excess sodium hydroxide solution to score the second mark. In (b)(ii) the white precipitate of zinc hydroxide did dissolve in excess ammonia providing the test tube was gently shaken as the ammonia was added.

A2B6 This task was the less popular of the two inorganic exercises. Some candidates were unable to write correct formulae for the compounds. If names were given then an oxidation number should have been included where appropriate.

A2B7 This was the most popular activity b exercise. The explanation in (a)(iii) was often poorly expressed. The answer "spin-spin coupling" alone should not have been awarded a mark. It was sufficient, though, to state that the nmr was for propan-1-ol since there are four peaks indicating that the compound has four different proton environments. In (b)(iv) the answer "carbonyl group" should not have been awarded the mark unless "methyl" was also included.

A2B8 The silver mirror test in (b)(ii) did give the expected result for some candidates in most centres that completed this assessment. It is recommended that, if this reaction is included in future observation tasks, teachers try out the test in advance of their students and, if necessary, make adjustments to the reagents to ensure that the correct result is achieved.

The four tasks available in 2010-2011 are no longer valid and must not be used for assessment of this activity in 2011-2012. Four replacement tasks

are to be found on the secure web site. The 2010-2011 tasks may be used as practice exercises since they are no longer secure.

### **Activity c Quantitative measurement**

A2C1 To score the first mark in (a) the graph, rather than the scales, should cover at least half of the graph paper in either direction. If the candidate makes an error reading the volume,  $V$ , in (b) then the teacher should correct the volume before awarding the accuracy marks.

A2C2 If candidates started the vertical axis of the graph at zero then the plotted line was almost flat and should not have scored the first mark in (a). Otherwise this was a successful assessment with full marks often being scored.

A2C3 It really is helpful to the moderator and is in the interests of candidates for centre assessors to annotate the work to show how the accuracy and range marks have been awarded. Ideally the working for the expected value and the difference between this and the candidate's mean titre should be shown. Some teachers award marks in the calculations in (a) and (b) for answers to two and even one significant figure. Only answers to three or four SFs are acceptable although the loss of trailing zeros is allowed.

A2C4 The moderators found more marking errors in this assessment than in any other activity c task. It was frequently the case that full marks had been awarded to the results table even though there were errors in the conversions. Unless the activation energy has a sign and is to two SFs the second mark in (d) should not be awarded.

### **Activity d Preparation**

A2D1 There is some mis-understanding about the award of marks for melting temperature accuracy in this task (and in A2D3). The mid-point of the two temperatures recorded by the candidate should be calculated to the nearest degree. This value should be matched with one of the ranges given in the mark scheme and accuracy marks awarded. For example if the candidate records a range of 124-128°C then the mid-point is 126 °C and one mark is awarded.

A2D2 This straight-forward and successful preparation continues to give high scores.

A2D3 In (c)(ii) "transfer losses" is an acceptable reason and may be awarded a mark.

## **Multi-stage activity**

A2M1 A small number of centres took the opportunity to assess their candidates using this extended task. Within a centre it is allowed for some candidates to submit this task and for others to use separate c and d tasks as part of their mark profile.

## **Summary**

The moderators thank centre assessors, candidates and technicians for their part in the implementation of the 6CH06 internal assessment scheme in its second year. Centre assessors must make absolutely sure that they are using the correct assessment tasks for 2011-2012. These are posted on the Edexcel Chemistry website from September, 2011.

Centre assessors are encouraged to ask the Principal Moderator for guidance on the scheme through Ask Edexcel/Ask the Expert. They may also find the document "Guidance for centres: Internally assessed units" to be useful. This is available on the Chemistry website

## **6CH06/1B**

### **General**

This was the second year that the component has been examined. Teachers have built upon their experience of the scheme and prepared their candidates well for the assessment tasks. Many high total marks were awarded by the examiners. In some centres all candidates scored near maximum marks.

Some centres did not include teachers' values with the scripts. Centre assessors are advised to read this report and the equivalent one for 6CH06/01B.

### **Comments on the administration of the scheme**

- The only b tasks valid for 2011-2012 are those posted on the Edexcel secure website in September, 2011. These are the b tasks A2B9-A2B12 and the most up to date versions of the c and d tasks.
- Record sheets must be fully completed. They must include candidate numbers and the full list of GPC tasks. Any record sheets lacking candidate and teacher signatures and dates are invalid and will be returned to centres for completion. The front cover of each assessment task should be completed with the candidate's name, number and the centre number.
- It is a requirement of the scheme that, for the activity c tasks, teacher's values are included with the sample of work sent to the examiner. The way to do this is to include a completed Teacher's Values Form. If there is more than one teaching set in a centre then teachers should make clear on the form which results apply to which candidates.
- It is only necessary to send to the examiner one each of the b, c and d tasks. It is the responsibility of the centre to choose these tasks from others that may have been completed by the candidate. There is no point in sending more than one of each since the examiner will only mark the task that is entered on the record sheet.

### **Assessments**

#### **Activity a(GPC)**

There remains some confusion in some centres as to the significance of the core practicals or GPC tasks. Comments in the 6CH06/1B report are equally applicable here

Centres may list non-counting assessment tasks as GPC tasks on the record sheet. However those b, c and d tasks for which the mark is to be included in the total mark should not also be listed as GPC tasks.



It is required that the GPC tasks are actually listed on each candidate's record sheet. Some centres left the GPC section blank but included a list of five tasks that all candidates had completed.

### **Activity b Qualitative observation**

A2B5 In part (a)(i) it was necessary to record that the blue precipitate was insoluble in excess sodium hydroxide solution to score the second mark. In (b)(ii) the white precipitate of zinc hydroxide did dissolve in excess ammonia providing the test tube was gently shaken as the ammonia was added.

A2B6 This task was the less popular of the two inorganic exercises. Some candidates were unable to write correct formulae for the compounds. If names were given then an oxidation number should have been included where appropriate.

A2B7 This was the most popular activity b exercise. The explanation in (a)(iii) was often poorly expressed. The answer "spin-spin coupling" alone was not enough to be awarded a mark. It was sufficient, though, to state that the nmr was for propan-1-ol since there are four peaks indicating that the compound has four different proton environments. In (b)(iv) the answer "carbonyl group" was not enough for the mark unless "methyl" was also included.

A2B8 The silver mirror test in (b)(ii) did give the expected result for some candidates in most centres that completed this assessment. It is recommended that, if this reaction is included in future observation tasks, teachers try out the test in advance of their students and, if necessary, make adjustments to the reagents to ensure that the correct result is achieved.

The four tasks available in 2010-2011 are no longer valid and must not be used for assessment of this activity in 2011-2012. Four replacement tasks are to be found on the secure web site. The 2010-2011 tasks may be used as practice exercises since they are no longer secure.

### **Activity c Quantitative measurement**

A2C1 To score the first mark in (a) the graph, rather than the scales should cover at least half of the graph paper in either direction.

A2C2 If candidates started the vertical axis of the graph at zero then the plotted line was almost flat and was not awarded the first mark in (a). Otherwise this was a successful assessment with full marks often being scored.

A2C3 Those centres that fail to include a completed Teacher's Values Form are at risk of penalising their candidates since the examiner may be unable to fairly award accuracy marks without information on mass and titre. Examiners do attempt to contact centres to ask for missing values but, often, the centre no longer has the results of the practical which may have been carried out some months earlier. Only answers to three or four SFs are

acceptable in parts (a) and (b) although the loss of trailing zeros is allowed. A2C4 Some candidates recorded acceptable results but then miscalculated the conversions. Unless the activation energy has a sign and is to two SFs the second mark in (d) is not awarded.

### **Activity d Preparation**

A2D1 Some candidates only scored one of the maximum two marks for the accuracy of their melting temperatures. The examiners continue to note the high yields often recorded for this preparation (and for A2D3). Teachers are reminded that they should allow time for the candidates' crystals to fully dry before they are weighed.

A2D2 This straight-forward and successful preparation continues to give high scores.

A2D3 In (c)(ii) "transfer losses" is an acceptable reason and may be awarded a mark.

### **Multi-stage activity**

A2M1 A small number of centres took the opportunity to assess their candidates using this extended task. Within a centre it is allowed for some candidates to submit this task and for others to include separate c and d tasks as part of their mark profile.

### **Summary**

The examiners thank teachers, candidates and technicians for their part in the implementation of the 6CH06 assessment scheme in its second year. Teachers must make absolutely sure that they are using the correct assessment tasks for 2011-2012. These are posted on the Edexcel Chemistry website from September, 2011.

Teachers are encouraged to ask the Principal Moderator for guidance on the scheme through Ask Edexcel/Ask the Expert. They may also find the document "Guidance for centres: Internally assessed units" to be useful. This is available on the Chemistry website

## **Appendix A: Grade boundaries**

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>

Further copies of this publication are available from  
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467  
Fax 01623 450481  
Email [publication.orders@edexcel.com](mailto:publication.orders@edexcel.com)  
Order Code US027570 June 2011

For more information on Edexcel qualifications, please visit  
[www.edexcel.com/quals](http://www.edexcel.com/quals)

Pearson Education Limited. Registered company number 872828  
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual  




Llywodraeth Cynulliad Cymru  
Welsh Assembly Government

