

Moderators' Report/
Principal Moderator Feedback

Summer 2014

Pearson Edexcel GCE
Chemistry (6CH03) Papers 1A/1B
Chemistry Laboratory Skills

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2014

Publications Code US038318

All the material in this publication is copyright

© Pearson Education Ltd 2014

6CH03 1A

General Comments

This was the sixth year for the assessment scheme so, for most centres, it is now well established with its implementation and administration having become routine. The administration of the scheme is, indeed, exemplary for many centres. There remain, however, a few centres that do need to review their procedures. In some cases the sample of work sent to the moderator is incomplete or badly organised.

Centre assessors are advised to read this report and their E9 feedback. They should take appropriate action to correct any shortcomings in their application of the assessment scheme for 2014-2015.

Comments on the administration of the scheme

- **For 2014-2015 all of the assessment tasks are new.** These are posted on the Edexcel website. The tasks are ASB25-ASB28, ASC6-ASC9 and ASD5-ASD7.

Only tasks chosen from this list are valid for assessment in 2014-2015.

- The administration and implementation of the scheme remain unchanged.
- Record sheets must be fully completed to include candidate names and numbers.
Centre and candidate numbers should be checked by centre assessors if they have been completed by the candidate.
- Each assessment task cover sheet should be completed in full. It was common to see both candidate and centre numbers omitted.
- The sample of work sent to the moderator should include that of the highest and lowest scoring candidate in the centre. If the sample requested by Edexcel does not include one or both of these then the centre must add the work of these candidates to the sample.
- In order that the moderator may check the marks awarded for accuracy in c tasks the centre needs to include a completed copy of the Teacher's Values form. In addition teachers should annotate c task work to show how that have awarded accuracy marks. The inclusion of spread sheets is also helpful to the moderator.
- All of the work from a centre should be marked to the same standard irrespective of which teacher actually does the marking. If two or more teachers mark the tasks in a centre the moderator should have evidence that internal standardisation has taken place. A useful way to show this is for the two markers to annotate the work using different coloured inks
- Moderators complete an E9 feedback form for each centre. Teachers are strongly advised to read this and to address any shortcomings listed in the report.

Assessments

Activity a(GPC)

Centres now seem to be clear about the purpose of carrying out these tasks. A wide range of laboratory activities is listed on record sheets. Providing at least one each of a physical, an inorganic and an organic experiment is included in the five tasks listed then the moderators do not comment on this part of the record sheet.

Activity b Qualitative observation

The four tasks available in 2013-2014 are no longer valid and must not be used for assessment of this activity in 2014-2015. Four replacement tasks, ASB25-ASB28, are on the secure web site.

- The two inorganic tasks, ASB21 and ASB22 were more popular than the two organic ones.
- Flame tests colours are often recorded by candidates with unlikely descriptions. Candidates should be aware that only Group 1 and 2 compounds will be set for flame tests and their expected colours are listed in the Edexcel User Guide.
- In ASB21 compound **B** could not be calcium or barium sulfate since these compounds would not have dissolved in water in (d). Only Mg^{2+} was accepted as the cation in (d)(iii).
- The equations in ASB21(d)(iv) and ASB22(b)(ii) were not well answered. In ASB21(d)(iv) magnesium hydroxide was often given an "aq" as its state symbol.
- In ASB22 there was some, perhaps understandable, confusion as to whether **D** was KBr or KI. If the recorded observations in (a)(iii) suggested that it was the bromide then consequential marking should have been used in (a)(iv) and (a)(v).
- In ASB23(c)(i) the wavenumber range should have been given as part of the explanation. Those candidates giving a single wavenumber should not have been awarded the second mark.
- The b tasks set for 2013-2014 are no longer secure and may be used as practice exercises.

Activity c Quantitative measurement

Many issues referred to in previous 6CH03 reports remain to be addressed by centres.

- Significant figures continue to be a cause of lost marks by candidates and of marking error by teachers. In each of the four tasks at least one numerical answer must be given to the appropriate number of significant figures. It is common in ASC3 and ASC5, for answers to the calculations to be given to 5 or 6 significant.

In ASC5 only 3 significant figures are allowed.

- It is helpful to the moderator if the expected value of titre or temperature is written on the work close to the candidate's value and the difference shown. In addition the moderator finds it very useful to have a completed Teacher's Values form so that he or she may check the award of accuracy marks.
- In the titration tables in ASC3 and ASC5 it is allowed to give the initial volume as 0 cm^3 . Confusingly some candidates give the initial volume as 50 cm^3 . Marking of this point and other titration values is explained in the detailed notes following the mark scheme.

The four activity c tasks in the 2014-2015 scheme will be ASC6 – ASC9.

Activity d Preparation

As in previous years this activity gave the highest proportion of the maximum mark for many candidates.

- Candidates are allowed to work in pairs for this activity. It is a condition of the scheme, however, that the questions are answered individually.
- In spite of the Hazchem information for some nickel compounds issued during the year many centres continued to use the preparation of nickel sulfate task. The alternative ASD4 did prove to be popular.
- In ASD4 many candidates failed to score the first mark in (g) by explaining that the sulfuric acid is the limiting reagent.
- If the maximum mass has been calculated incorrectly in a preparation then a corrected value should be used to re-calculate the percentage yield before marks are awarded.

The activity d tasks available in 2014-2015 are ASD5 – ASD7.

Summary

The moderators thank centre assessors, candidates and technicians for their part in the implementation of the internal assessment scheme. Centre assessors must make absolutely sure that they are using only the versions of the assessment tasks for 2014-2015 that are posted on the Edexcel Chemistry website from September, 2014.

Centre assessors are encouraged to ask the Principal Moderator for guidance on the scheme through Ask the Expert. Those new to the scheme or requiring more guidance may also like to join one of the online Edexcel training events on internal assessment.

6CH03 1B

General Comments

To ensure comparability between the two components the marking and standardisation of the assessment tasks for this component are marked using the same mark schemes and standardising materials as the internally assessed 6CH03.01A option. The grade boundaries for each component are the same.

The assessment tasks are, of course, also the same as those for 6CH03.01A. For both components centres need to be aware that all of the tasks for 2014-2015 are new. Tasks for previous years are not valid and will not be accepted by the examiners.

Some centres fail to implement all the procedures needed to operate the scheme rigorously and fairly. All teachers entering candidates for 6CH03.01B in 2015 are advised to read this report and, if necessary, to act upon it in order to ensure that the laboratory skills of their candidates laboratory skills are fairly and correctly assessed.

Comments on the administration of the scheme

- **For 2014-2015 all of the assessment tasks are new.** These are posted on the Edexcel website. The tasks are ASB25-ASB28, ASC6-ASC9 and ASD5-ASD7.

Only tasks chosen from this list are valid for assessment in 2014-2015.

- Record sheets must be fully completed to include candidate names and numbers.
Centre and candidate numbers should be checked by centre assessors if they have been completed by the candidate. They must be signed **and dated** by both the candidate and the centre assessor.
- Even though a candidate may have completed more than one of each b, c and d task only one each of an activity b, c and d task must be sent to the examiner
- Although there is no requirement for teachers to mark the work often they do so in order to decide which tasks are the highest scoring ones. It is helpful to the examiners and may avoid confusion for script checkers if this marking is carried out in pencil and not in red ink. Even if they have marked the work teachers should not enter marks on the record sheet.
- Each assessment task cover sheet should be completed in full. It was common to see both candidate and centre numbers omitted.
- In order that the examiner may award marks awarded for accuracy in the c tasks the centre needs to include a completed copy of the Teacher's Values form with the work. It is not enough to simply give the differences in titres and temperatures.

Assessments

Activity a(GPC)

It remains an essential condition of the assessment scheme that the five GPC tasks listed include at least one each of a physical, inorganic and organic practical exercise.

Activity b Qualitative observation

The four tasks available in 2013-2014 are no longer valid and must not be used for assessment of this activity in 2014-2015. Four replacement tasks, ASB25-ASB28, are on the secure web site.

- The two inorganic tasks, ASB21 and ASB22 were more popular than the two organic ones.
- Flame tests colours are often recorded by candidates with unlikely descriptions. Candidates should be aware that only Group 1 and 2 compounds will be set for flame tests and their expected colours are listed in the Edexcel User Guide.
- In ASB21 compound **B** could not be calcium or barium sulfate since these compounds would not have dissolved in water in (d). Only Mg^{2+} was accepted as the cation in (d)(iii).
- The equations in ASB21(d)(iv) and ASB22(b)(ii) were not well answered. In ASB21(d)(iv) magnesium hydroxide was often given an "aq" as its state symbol.
- In ASB22 there was some, perhaps understandable, confusion as to whether **D** was KBr or KI. If the recorded observations in (a)(iii) suggested that it was the bromide then consequential marking was used by the examiners in (a)(iv) and (a)(v).
- In ASB23(c)(i) the wavenumber range should have been given as part of the explanation. Those candidates giving a single wavenumber were not awarded the second mark.
- The b tasks set for 2013-2014 are no longer secure and may be used as practice exercises.

Activity c Quantitative measurement

Many issues referred to in previous 6CH03 reports remain to be addressed by centres.

- Significant figures continue to be a cause of lost marks by candidates. In each of the four tasks at least one numerical answer must be given to the appropriate number of significant figures. It was common in ASC3 and ASC5, for answers to the calculations to be given to 5 or 6 significant figures. In ASC5 only 3 significant figures are allowed.
- In the titration tables in ASC3 and ASC5 it is allowed to give the initial volume as 0 cm^3 . Confusingly some candidates give the initial volume as 50 cm^3 . The way in which examiners mark this point and other titration values is explained in the detailed notes following the mark scheme.

The four activity c tasks in the 2014-2015 scheme will be ASC6 – ASC9.

Activity d Preparation

As in previous years this activity gave the highest proportion of the maximum mark for many candidates.

- Candidates are allowed to work in pairs for this activity. It is a condition of the scheme, however, that the questions are answered individually.
- In spite of the Hazchem information for some nickel compounds issued during the year many centres continued to use the preparation of nickel sulfate task. The alternative ASD4 did prove to be popular.
- In ASD4 many candidates failed to score the first mark in (g) by explaining that the sulfuric acid is the limiting reagent.
- If the maximum mass has been calculated incorrectly in a preparation then a corrected value was used to re-calculate the percentage yield before marks were awarded.

The activity d tasks available in 2014-2015 are ASD5 – ASD7.

Summary

The examiners thank teachers, candidates and technicians for their part in the implementation of the assessment scheme. Teachers must make absolutely sure that they are using only the versions of the assessment tasks for 2014-2015. These are posted on the Edexcel Chemistry website from September, 2014.

Teachers are encouraged to ask the Principal Examiner for guidance on the scheme through Ask the Expert. Those new to the scheme or requiring more guidance may also like to join one of the Edexcel training events on internal assessment.

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>

