

A-level Chemistry

CHM3T Investigative and Practical Skills in AS Chemistry (ISA)
Report on the Examination

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General

There appeared to be fewer centres out of tolerance this year and these were biased towards errors in marking the 3Q option. The processing of task results for accuracy this year was more complex and it was not aided by late changes to the Marking Guidelines that did not seem to have got through to the markers. It is a requirement that Marking Guidelines are only printed off and distributed after every student has completed the Written Test. Some Centres appeared to be using very early copies.

Again, the omission of teacher values for some groups delayed the moderation process. Most Centres tackled the ISAs well but there is still evidence of inadequate trialling of the tasks. Though the Marking Guidelines are not seen at this stage, teachers ought to be aware of the results to be expected, especially for observation tasks, and to remedy any initial problems internally or through their Assessment Adviser. It is not acceptable to submit teacher results that are clearly wrong without further action.

This year saw some deterioration in the quality of graphical work. This is an important chemical skill and should be regularly practised. Inappropriate scales, poor plotting of points and thick, doubled or wavy lines of best fit were often seen.

It is important for moderation to ensure that the rule of 'one tick per mark' is applied. This allows easier clerical checks by the Centre and moderators. There is a growing number of students whose marks have to be adjusted because of clerical errors in addition. The process of internal moderation by Centres was often apparent but, where there is an adjustment, the final submitted mark for that student should be made clear.

Centres often apply 'benefit of doubt' to some responses and this is acceptable so long as, within the paper as a whole, there is a balance of judgment. In general, the examination worked well and there was a good distribution of marks. The detail below highlights some of the problem areas in the marking to help teachers with similar situations in the future.

CHM3TP: Task

This was generally done very well though some students are still not properly trained in correct chemical observations - 'cloudy solution' and 'white solution' were not uncommon.

CHM3TP: Written Test (Section A)

In the Written Test Section A, Q1 drew out a few arithmetic errors, transpositions and incorrect decimal places but was straightforward for most. Few centres made the mistake of awarding 2 marks here. Q2 was well done but again with some problems associated with decimal places. Centres cannot ignore the specific Marking Guidelines' instructions. Q3 was well done with a few of the weaker students having problems with correct formulae. Q4 and Q5a were well answered by many through a few focused on the hazards from the Bunsen burner – this did not always proscribe marks in Q5b, however. The main problems in Q5b were associated with variation from their own observations and poor expression of ideas e.g. only mentioning one solid colour in their answer. Q6 was well done. However, only the best students were able to gain high marks in Q7a and Q7b – students needed to recognise that the solution was initially acidic. The use of phenolphthalein, despite the warning, was often credited by centres without proper explanation. Q7c was also a good discriminator though some centres did have problems recognising the correct unit in the answer.

CHM3TP: Written Test (Section B)

In Section B, Q8a produced the usual crop of poor scales and poor lines of best fit that were curiously accepted by some centres. Additionally, a failure to plot the point at 0,0 should be penalised. Q8b was a very easy question and there were many good answers to Q9a and Q9b. Weaker students still have problems with correct substitution and rearrangement of the equation. Q9c was a more challenging question and many Centres failed to give credit for a (correct) alternative method. Q10 again highlighted the need for students to get better training in the drawing of diagrams. This is a communication skill and correct chemical apparatus should be seen – poor bungs and cross-sections were very common and centres were often too lenient in their marking.

CHM3TQ: Task

Generally the titration was well done with consistent and accurate results. There were the occasional failures to check student's arithmetic – this can have a severe effect on the overall task mark and should be carefully done. As mentioned above some centres struggled with the late amendment to the Marking Guidelines for Accuracy and we must apologise for this and the possible confusion caused. However, centres are advised to check that, before starting to mark, the most up-to-date version is available.

CHM3TQ: Written Test (Section A)

In Section A of the Written Test, there were marking problems again relating to the number of significant figures. Teachers should make themselves aware of the ideas involved and train their students appropriately – ignoring the instructions in the Marking Guidelines is not acceptable. In Q2 a common error was to miss out M2 but this then appeared in the answer to Q3 and was, correctly, credited there. Failure to put in the x10 factor at all must be penalised. Q3a was quite a discriminating question and some weaker students got very confused. Q3b now causes few problems, happily. Q3c was also a very discriminating question with some poor knowledge of formula and incorrect ratios. Q3d, Q4 and Q5 were well answered. In Q6 some centres were very lenient in the marking – the production of CO₂ gas in itself is not worthy of the mark. It is interesting to note that a vast range of students were aware of and used the term 'bloating' in relation to this question. Q7a and Q7b were well understood by students but a poor expression of the ideas and contradiction in the answers were often penalised.

CHM3TQ: Written Test (Section B)

In Section B Q8a, Q8b and Q8c were good discriminators with, again, poor expression of the chemical ideas the major problem. Over-generous marking was particularly evident in Q8a and Q8b. In Q9a, again, Centres often ignored the requirement for 3 s.f. in the answers and were lenient in marking Q9b. It is the sequence of steps here that is important and the omission of a 'known volume' the usual error. Centres must not give credit for 'evaporate' as part of a method that is clearly unworkable.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.

Converting Marks into UMS marks

Convert raw marks into Uniform Mark Scale (UMS) marks by using the link below.

UMS conversion calculator www.aqa.org.uk/umsconversion