Leaving Certificate Chemistry Committee Convenor's Report
4th July 2021

Opinions on these papers are based on discussions held by members of our Association around the country. Reports were collated and discussed by the convenor of a committee of experienced teachers of Leaving Certificate Chemistry, elected by members of the ISTA.

General Comments on the 2021 Chemistry Higher Level Paper

This year's paper was **not** very well received by many students and teachers. It was felt that the ***extra proclaimed choices were negated by the blending of topics.*** Anyone who may have legitimately not covered the whole course, especially the practical element due to the pandemic, may have been limited in their choices. The fact that only half questions on Rates of Reaction and Water also limited students' choices.

Although from a teaching perspective it was nice to see some fresh questions that required a lot of higher order thinking, from the student perspective in an exam situation, they were thrown by some aspects of the paper, and many compensated by doing extra questions. The recent style of an increased level of text on the exam paper is off-putting to international students where English is their second language.

While we appreciate that the syllabus has been examined since 2002 and that it is difficult to keep coming up with fresh questions, there is always a trad eoff between maintaining standards and making the subject accessible. We fear that based on this exam paper, students will have yet another reason to perceive chemistry as too difficult an option choice subject in fifth year and it is unlikely to encourage more students to take chemistry as a Leaving Certificate subject. Overall, it was a ***very tough paper*** which tested all main areas of the syllabus.

Feedback from teachers expressed concern about the future of chemistry in their schools. The introduction of new Leaving Certificate subjects (e.g. Physical Education, Computer Science and Politics and Society) is having the effect of drawing students away from chemistry. Therefore, students should not come out of the examination with regret at having taken chemistry as a subject due to the fact that they have had to tackle questions with difficult twists that they have never encountered before.

We are also concerned that the experience of our Agricultural Science colleagues and students with the new Agricultural Science specification may negatively impact on students' willingness to undertake the new chemistry specification.

Additional Observations: With the introduction of one-hour classes in many schools, 20 mins are being lost every week for the two years of Senior Cycle and this is putting severe pressure on teachers to complete the syllabus in school time. We are getting reports that many are having to take their students for classes after school to complete the course. Additionally, the gap between the Junior Cycle and Senior Cycle Science subjects has become a chasm, as the new Junior Cycle science specifications do not prepare students for Senior Cycle chemistry. Finally, we commend the SEC for listening to the voice of teachers, reversing the decision to remove the OPTIONS from the original adjustments to the written exam.

Additional Specific Comments on the Higher-Level Paper

Question 1:
Overall this was a fair and testing first question.

Question 2:
Another fair and testing question. However, the addition of the micelle molecule of soap might have been off-putting for those not exposed to it by their teacher and was unnecessary for the answering of the question.

Question 3:
A long-awaited question on the redox experiments, however, was this the year to introduce it? This is an example of where the blending of topics negated the perceived choice on the paper, with flame and anion tests blended with redox.

Question 4:
This was a very testing question. A lot of application of knowledge and higher order thinking required especially in parts (d), (f), (g), (h) and (k).
We hope that there will not be an insistence on the H_3O^+ (hydronium ion) in part (i) and that the H^+ (hydrogen ion) will be acceptable in the answer.

Question 5:
Overall, this was a good question however part (a) which required clear thinking might have thrown students at the start of the question and might have been better placed at the end of the question.

Question 6:
Another fair but testing question. We would have preferred if the term 'diesel' was used along with 'gas oil'.

Question 7:
Due to the calculation in (d) we expect that this will not be a popular question.

Question 8: A good question from the perspective of being contemporary with 'hand sanitizer' featuring.

Question 9:
Overall a demanding question and we expect that it will not be popular with most students.

Question10:
A fair question as there was choice without blending of topics.

Question 11:
Another fair question, however, the extra text in part (c) could be off-putting to international students where English is not their first language.

In general, it was felt that the **Higher-Level paper was very challenging**, and not a student friendly paper due to the blending of topics.

Comments from Students

"The exam was tougher than in recent years".

"Tricky wording and extremely specific questions made the paper considerably more challenging than what students were used to".

"For those who had spent hours mastering past papers, it was a slap in the face".

"Almost every question had an unusual twist".

"This year's question 5 was particularly horrific- students were asked oddly specific questions about 'super heavy' elements of the future, the boundary of an atom and why establishing an atomic radius for argon is problematic".

"Disappointed to see fewer water and rates of reaction questions than normal".

Comments on 2021 Ordinary Level Chemistry Paper

The OrdinaryLevel paper was a similar format to other years with no real surprises.

There is a broad range of topics covered in the examination paper. Any student who hada reasonable amount of preparation done should have no problem selecting topics to their liking.

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