

Unit 6: Laboratory chemistry II

Chemistry is a laboratory-based subject. The assessment objectives for practical chemistry listed on pages 43 to 44 should form the basis for any laboratory course regardless of the chosen method of assessment of practical skills.

The philosophy of this specification is that teachers should be free to approach topics in the specification in whichever way they choose. This is particularly true of practical work. For this reason the specification does not list experiments that *must* be carried out by the student or demonstrated by staff.

The course assumes that students will spend sufficient time in the laboratory to develop competence in practical chemistry.

Topic 6.1A: Assessment of experiment skills II

Summary of content

The content of this unit assumes a knowledge of the content and techniques covered Unit 3 together with that listed below.

Students shall be able to:

- a observe and interpret details of the chemistry of the elements and compounds listed in Units 4 and 5 of this specification
 - *this includes the chemistry associated with the organic compounds listed in topics 4.5 and 5.3, lead in topic 4.2, the transition metals in topic 5.2 and the ions tested in topic 3.1A parts (a) and (b)*
 - *reference to standard texts is assumed for the interpretation of the results from observation exercises*
- b recognise the results of experiments to identify functional groups in organic compounds listed in topic 5.5
- c carry out the practical techniques described in topic 5.5
 - *to include mixing, heating under reflux, fractional distillation, filtration under reduced pressure (filter pump and Buchner funnel), recrystallisation, melting temperature and boiling temperature determination, and heating with a variety of heat sources*
- d carry out techniques used in volumetric analysis, kinetics and equilibria
 - *in assessment exercises titrations will be limited to those involving acid-base, EDTA, potassium manganate(VII), and sodium thiosulphate: relevant equations will be given where these are not to be determined*
 - *exercises may also involve other quantitative measurements of, for example, time or temperature change*
- e present and interpret quantitative and qualitative results
- f devise and plan simple experiments and techniques based on the chemistry and techniques summarised in a to e above.

Details of the administrative procedures used for internal assessment of students and the details of the practical examination are to be found in the section on *Practical Chemistry*.

The Edexcel publication Internal Assessment of Practical Coursework (*Appendix D*) provides suitable AS and A2 experiments with mark schemes. The experiments and mark schemes present a clear indication of the demand expected at AS and at A2 for the internal assessment of practical skills. Centres do not have to use the experiments included in *Internal Assessment of Practical Coursework* but can refer to the book for guidance on AS and A2 standards.

Topic 6.1B: Synoptic

Students will be expected to:

Draw together knowledge, understanding and skills learned in different parts of the GCE course including practical aspects. The emphasis of synoptic assessment is on understanding and application of the principles included in the specification.