AN ROINN OIDEACHAIS

(Department of Education).

BRAINNSE AN MHEADHON-OIDEACHAIS

(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1937.

LOWER COURSE.

CHEMISTRY.

FRIDAY, 18th JUNE.—AFTERNOON, 4 P.M TO 6 P.M.

(*a*) Not more than *six* questions to be attempted. All questions are of equal value.

(*b*) Chemical reactions should be expressed in words and represented by chemical equations.

(*c*) Answers should be illustrated by sketches wherever possible.

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1. Sketch an apparatus for the preparation of a regular supply of carbon dioxide in the laboratory and explain how it is used.
Describe the properties of carbon dioxide and explain how its composition has been found and its formula deduced.

2. What is meant by allotropy ?
Describe the different allotropic modifications of sulphur.
How may sulphur be converted into sulphurous acid and sulphuric acid ?

3. Explain fully why the formula for water is stated to be H_2O.

4. How may (*a*) chlorine and (*b*) sodium carbonate be obtained from sodium chloride ?
Mention some uses of chlorine and of sodium carbonate.

5. Write the chemical formulae for *any three* of the following substances and mention how they are obtained : (*a*) red lead, (*b*) nitre, (*c*) baking soda, (*d*) lime, (*e*) blue vitriol.

6. What is an acid anhydride ? Write formulae for the anhydrides of nitric and phosphoric acids, describe methods for their preparation and write equations showing how they may be converted into their corresponding acids.

7. Describe a process for the manufacture of ethyl alcohol. Write the structural formula for ethyl alcohol and give the reasons on which it is based.

8. How may acetylene be prepared ? How does it react with chlorine ?

Write the structural formula for acetylene.

9. What are the halogens and why are they so called ?

Draw up a table comparing the properties (physical and chemical) of the halogens.

10. What are the chief sources of ammonia and how is it manufactured from these sources ?

Describe the properties of ammonia and mention some of its uses.

11. What is meant by the equivalent of an element ?

Knowing the equivalent of a metal how would you find its atomic weight and its valency.

12. What is meant by water of crystallisation ?

A sample of crystalline sodium sulphate contained 55·9 per cent. of water. Calculate the number of molecules of water of crystallisation in the salt.

(Atomic weights : Na ; 23, S ; 32).