

AN ROINN OIDEACHAIS  
(Department of Education).

BRAINSE AN MHEAN-OIDEACHAIS  
(Secondary Education Branch).

---

LEAVING CERTIFICATE EXAMINATION, 1930.

---

PASS.

CHEMISTRY.

WEDNESDAY, 18th JUNE.—MORNING, 10 A.M. TO 12 NOON.

---

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

(b) Chemical reactions must be expressed in words, and represented by chemical equations.

(c) Chemical operations must be illustrated by sketches.

1. Explain the meaning of the following terms:—  
(a) efflorescence, (b) deliquescence, (c) supersaturated solution, (d) hydrate, (e) compound radicle. Give one example in each case.

2. Explain fully all that is implied by the following equation:  
$$2 \text{Ag NO}_3 + \text{Ba Cl}_2 = 2 \text{Ag Cl} + \text{Ba (NO}_3)_2.$$

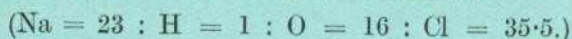
The Atomic weights of the elements are:—

(Ag = 108 : N = 14 : O = 16 : Ba = 137 ; Cl = 35.5.)

3. Describe the preparation and properties of chlorine. What is the action of the gas on a solution of (a) potassium iodide, (b) potassium hydroxide ?

4. What products are obtained when the following substances are heated with concentrated sulphuric acid:—(a) copper, (b) sodium nitrate, (c) potassium bromide, (d) barium chloride, (e) ammonium oxalate ? Give equations.

5. Excess of water is allowed to react with 0.2 grams of sodium. What volume of deci-normal hydrochloric acid would be required to neutralise the resulting solution, and what weight of sodium chloride would be formed?



6. Describe how you would proceed experimentally to determine the volume of hydrogen produced by dissolving 0.5 gm. of zinc in dilute hydrochloric acid. If the volume of hydrogen displaced were 183 c.c. at 15°C and 750 m.m. pressure, determine the equivalent weight of zinc.

7. You are provided with lead oxide, nitric acid, and ammonium hydroxide; describe how you would prepare specimens of nitrogen peroxide and nitrous oxide. (Usual laboratory facilities are available.)

8. State the Law of Reciprocal Proportions, and illustrate it, by reference to two examples.

9. What is meant by the term "valency of an element"? Write the formula for:—

- (1) the nitrate of a divalent element.
- (2) the sulphate of a trivalent element.
- (3) the chloride of a tetravalent element.

10. What is the result of the action of yeast on a solution of sugar? By what tests would you identify the principal products? Mention any practical applications of this process.