

AN ROINN OIDEACHAIS

(Department of Education.)

LEAVING CERTIFICATE EXAMINATION, 1944.

CHEMISTRY.—PASS.

TUESDAY, 20th JUNE.—MORNING, 10 TO 12.

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

1. Write an equation for the action of slaked lime on ammonium chloride.

What volume of ammonia gas measured at 10°C. and 740 mm., would be obtained from 117 grams of ammonium chloride ?

(Atomic weights : N, 14. Cl, 35.5)

2. Given a solid substance describe how you would proceed to find out whether it was chemical compound or a mixture.

From a mixture of powdered limestone and turf mould how would you obtain turf mould free from limestone ?

3. Describe (with diagram) an apparatus for the preparation of carbon dioxide in the laboratory and explain how you would use the apparatus. Write an equation to illustrate the reaction involved.

Give an account of the properties of carbon dioxide and mention any uses of it with which you are acquainted.

4. What is meant by the temporary hardness of water ?

How does water acquire temporary hardness and how may it be removed ?

5. Describe the reactions that takes place in each of the following mixtures : (a) manganese dioxide and hydrochloric acid, (b) ferrous sulphate, and potassium permanganate and dilute sulphuric acid ; (c) sodium sulphite and dilute sulphuric acid.

6. State Avogadro's hypothesis.

Why is it supposed that the molecule of hydrogen contains two atoms?

7. Where is sulphur found?

How would you obtain (a) sulphuretted hydrogen; (b) sulphur dioxide, and (c) sulphuric acid from sulphur?

8. Describe a method for the preparation of nitric oxide.

How does nitric oxide react (a) with air, and (b) with ferrous sulphate?

9. How would you obtain (a) calcium carbonate from calcium chloride? (b) magnesium oxide from magnesium chloride, and (c) copper oxide from copper nitrate?

10. Describe the method by which Dumas determined the composition of water by weight.

11. Mention one mineral of each of the following: (a) copper; (b) lead; (c) tin.

Mention also *one* common salt of each. Write down its chemical formula and describe a laboratory method for preparing it, starting from the metal.

12. How is (a) red phosphorus and (b) phosphorus pentoxide obtained from yellow phosphorus?

Write an equation for the reaction which takes place when phosphorus pentoxide is added to water.