AN ROINN OIDEACHAIS

(Department of Education).

BRAINSE AN MHEÁN-OIDEACHAIS

(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1928.

PASS

CHEMISTRY.

TUESDAY, 19*th JUNE*.—MORNING, 10 A.M. TO 12 NOON.

Not more than *six* questions are to be attempted.

Illustrate your answers by diagrams and equations wherever possible.

All questions are of equal value.

1. What is meant by the equivalent of an element? Describe a method of determining the equivalent of aluminium.

0·15 grms. of aluminium liberate 192 c.cs. of hydrogen from an acid at 12° C. and 750 m.m. pressure, calculate the equivalent of aluminium.

2. Explain the causes of the hardness of water and describe the methods by which it may be removed.

How may the hardness of two samples of water be compared?

3. A given solution contains either a chloride, nitrate or sulphate. Give the tests by which the acid present may be recognised and confirmed.

4. How would you prepare pure nitric oxide? What are the properties of the gas?

Explain the use of nitric oxide in the manufacture of sulphuric acid.

5. What weight of crystalline sodium sulphate (Na_2, SO_4, $10H_2O$.) is obtainable from 500 c.cs. decinormal sulphuric acid?

(Na=23 S=32 O=16 H=1).

6. Explain what is meant by the following terms :—(*a*) atom, (*b*) molecule, (*c*) acid, (*d*) base, (*e*) salt, (*f*) catalysis.

7. Name five common metals. Give the formulæ of their oxides and chlorides. How would you distinguish between these five chlorides?

8. Describe fully the experiments you would perform to show that water consists of hydrogen and oxygen.

9. Describe the preparation and properties of sulphur dioxide.

Sulphur dioxide contains its own volume of oxygen ; the density of sulphur dioxide is 32, and the atomic weight of sulphur is 32. What is the formula of sulphur dioxide?

10. How is methane prepared?

Contrast the properties of methane and ethylene.