

# AN ROINN OIDEACHAIS

(Department of Education).

## BRAINSE AN MHEÁN-OIDEACHAIS

(Secondary Education Branch).

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LEAVING CERTIFICATE EXAMINATION, 1927.

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PASS

### CHEMISTRY.

WEDNESDAY, 22nd JUNE.—MORNING, 10 A.M. TO 12 NOON.

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

Illustrate your answers by diagrams and equations wherever possible.

1. Describe with all essential practical details how to find the equivalent of silver.

2. What is the effect of heating hydrochloric acid with the following :—(a) aluminium, (b) litharge, (c) red lead, (d) copper hydroxide, (e) manganese dioxide.

3. Describe how pure specimens of any two of the following are prepared :—

(a) nitric oxide.

(b) nitrous oxide.

(c) carbon monoxide.

4. Describe the effect of passing dry ammonia over heated copper oxide. Sketch the apparatus required, and show the reaction could be used to determine the equivalent of copper.

5. Describe how and under what conditions the following substances react with one another :—

- (a) copper and concentrated sulphuric acid.
- (b) carbon dioxide and carbon.
- (c) sulphur dioxide and oxygen.
- (d) hydrogen sulphide and lead nitrate.

6. 25 c.cs of caustic soda solution are neutralised by 23 c.cs of a decinormal solution of sulphuric acid. Determine the weight of caustic soda per litre. Also determine the weight of sodium sulphate obtained from 500 c.cs of this caustic soda solution.

$$[\text{Na}=23. \text{O}=16. \text{H}=1. \text{S}=32.]$$

7. Compare the properties of the two allotropic forms of phosphorus.

8. State the Law of Multiple proportions. Two oxides of iron are found to contain 70 per cent. and 77.5 per cent. iron. Determine if these oxides conform to the law.

$$(\text{Fe}=55.85).$$

9. State Dulong and Petit's Law. 0.9 grms. of a metal will give 1.50 grms. of the oxide of the metal. The specific heat of the metal is .223. Find the atomic weight of the metal.

10. Describe the preparation and properties of ethylene.