

AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1944.

SCIENCE (Syllabus B).

TUESDAY, 20th JUNE.—MORNING 10 TO 12.

[Not more than *six* questions are to be attempted, of which *three* must be taken from Section I, and *three* from Section II. Illustrate your answers wherever possible. All questions are of equal value.]

SECTION I.

1. Describe, giving a diagram, how oxygen is prepared and collected in the laboratory. Mention the properties of the gas. What do you understand by an oxide? Give an example of (a) a gaseous oxide, (b) a liquid oxide. Mention the properties of any one of these oxides.

2. Describe, with diagram, how nitric acid is prepared in the laboratory. Mention the properties of the acid. Describe how you would identify nitric acid from a solution of hydrochloric acid gas.

3. Name the principal products formed when coal is strongly heated in a hard glass test tube. Show by means of a diagram how these products are collected. What commercial use is made of any two of them?

4. What do you understand by density? Describe how the density of a liquid may be determined by means of Hare's apparatus. A body weighs 52 grams in air, 32 grams in water and 36.1 grams in alcohol. Calculate (a) the density of the body, (b) the density of alcohol.

5. How do changes in the pressure of the atmosphere affect (a) the boiling point, (b) the freezing point of water? Describe an experiment or experiments in support of your answer in the case of (a).

SECTION II.

6. Show by means of diagrams the position and appearance of the following organs:—(a) the spleen, (b) the kidneys, (c) the lungs.

Mention the functions of each of these organs.

7. Draw a diagram of the interior of the heart to show how the blood is kept in circulation. What are the differences between venous blood and arterial blood? What causes these differences?

8. What are the functions of the saliva? Describe any experiment to illustrate the action of the saliva. Name any two other juices that are prepared in the body and draw diagrams of the organs in which they are prepared.

9. Draw a longitudinal section of any flower with which you are familiar. Name the flower. Name also its different parts and state the function of each.

10. Mention different methods by which fruits and seeds are dispersed. Illustrate your answer by one example in each case, showing how the structure is suited to the method of dispersal.