

AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1947.

SCIENCE (Syllabus B).

WEDNESDAY, 18th 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 an experiment to show that the air exerts pressure.
Describe with the aid of a diagram the common water pump, and explain how it works.
2. Describe how the weight of a litre of air may be determined experimentally.
Explain why the density of air does not remain constant.
3. Describe how you would use (a) a density bottle, (b) a loaded test tube, to determine the density of a liquid.
4. What do you understand by (a) an element, (b) a compound? Name the principal constituents of the air and state in connection with each whether it is an element or a compound.
Describe, with the aid of a diagram, an experiment to determine the volume of air which is used up when phosphorus is burned in a closed vessel containing air.
What changes are *to be seen* during the course of the experiment?
5. Describe how hydrochloric acid may be prepared in the laboratory.
If you then had a piece of sodium, describe how you would prepare a sample of table salt.

SECTION II.

6. What conditions are necessary for carbon assimilation? In the case of any two of these conditions describe experiments, one in each case, in support of your answer.

[P.T.O.]

7. What do you understand by the following in connection with the testing of seed: (a) "purity," (b) "germination," (c) "true value."?

Describe how a sample of seed may be tested (i) for purity, (ii) for germination.

A seed merchant offers oats for sale, a sample of which has a 90% purity and an 85% germination. Calculate the "true value" of the sample.

8. In what parts of a plant are the following to be found: root hairs, vascular bundles, dormant buds, pistil, lenticel? Explain the function of each.

9. Write a brief account of the functions of each of the following: (a) the skin, (b) the liver, (c) the pancreas, (d) the stomach.

10. Name the respiratory organs and draw diagrams of them. What are the differences between fresh air and expired air? Explain the causes of these differences.