

AN ROINN OIDEACHAIS

(Department of Education).

BRAINSE AN MHEADHON-OIDEACHAIS

(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1925

SCIENCE (Syllabus D).

TUESDAY, 23rd JUNE.—MORNING, 10 A.M. to 12 NOON.

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

1. What do you understand by 'the density' of milk?
How would you find it—

- (a) If you were allowed to use a balance?
- (b) If you were not allowed to use a balance?

What is the principle underlying the second method?

2. How would you find the weight of a litre of air?

A rectangular room measures 10 metres by 6 metres by 3.5 metres. Find the weight of air in the room if a litre of air weighs 1.26 grams.

3. Why does the mercury in a thermometer go up and down? Mention three occasions when you would use a thermometer.

4. Why does water boil?

Describe an experiment to illustrate the effect of dissolved solids on the boiling-point.

5. What do you understand by (a) blood heat, (b) specific heat, (c) latent heat?

Two similar vessels, one containing water and the other containing the same weight of olive oil at the same temperature, are placed beside one another in a hot oven. In ten minutes the temperature of the oil rises much higher than that of the water. Why should this be so?

6. Explain briefly the following :—

(a) the use of sodium bi-carbonate in baking powder;

(b) the use of coating iron vessels with zinc to protect the iron from rusting;

(c) the use of boiling hard water and adding washing-soda in order to soften it;

(d) the use of phosphorus in the manufacture of matches.

7. Describe carefully a method of showing that air contains approximately 20 per cent. of oxygen.

8. Mention experiments and other evidence to show—

(a) that there is a source of heat within the body;

(b) that this heat is produced by a process similar to the burning of fuel.

9. Describe the circulation and uses of the blood. State the functions of the white corpuscles.

10. What is meant by respiration? Give a brief account of the mechanism of respiration, and contrast the composition of 'inspired air' with that of 'expired air.'