

AN ROINN OIDEACHAIS.
(Department of Education).

BRAINNSE AN MHEADHON-OIDEACHAIS
(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1936.

FULL COURSE.

SCIENCE (Syllabus D).

FRIDAY, 19th JUNE.—AFTERNOON, 4 TO 6 P.M.

[Not more than *six* questions to be attempted. All the questions are of equal value. Illustrate your answers wherever possible.]

1. What do you understand by (a) hard water, (b) soft water? Describe two methods by which hard water can be made soft, and explain the changes that occur in each case.

2. A heavy uniform beam 16 feet long is used as a see-saw. Two girls, whose weights are 60 lb. and 100 lb. respectively, sit on it 1 foot from each end. The beam balances when supported at a point 6 feet from the heavier girl. Find the weight of the beam.

3. How would you show by experiment that a black surface radiates and absorbs heat better than a bright surface. Mention three examples of the application of this principle.

4. Describe a simple form of syphon and explain how it works. Give examples of its use in the house.

5. An aluminium teapot usually has a wooden handle, while an enamel one has not. What experiment would you perform to illustrate the principle on which this practice is based?

6. Describe three methods for finding the density of milk. Which of these do you consider to be the most accurate?

7. You are given several gas jars, some of which contain air, some oxygen, some hydrogen, and some carbon dioxide. What tests would you apply to identify the various gases?

8. Describe briefly the digestion of starch in the body. How would you demonstrate it in the laboratory?

9. Describe by aid of sketches the structure of the heart. What is the function of the heart?

10. Sand, sugar, and water are mixed together in a vessel. How would you separate these substances from one another?

11. Make a sketch of the apparatus you would use to find the effect of heat on bread (*a*) in air, (*b*) in absence of air. What would you see in each case?

12. Explain the following:—

(*a*) the use of bread-soda for baking;

(*b*) the use of fat in frying;

(*c*) the cracking of some glass vessels when boiling water is poured into them;

(*d*) the presence of water on the inside of the kitchen window on a winter's day.