AN ROINN OIDEACHAIS
(Department of Education).

BRAINNSE AN MHEADHON-OIDEACHAIS
(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1938.

FULL COURSE

SCIENCE (Syllabus B).

MONDAY, 20th 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 is the Principle of Archimedes? How would you employ your knowledge of this principle to determine the Relative Density of methylated spirits?

2. Describe the construction of a thermometer. How would you graduate it in the centigrade scale?

3. What do you understand by the term Dew Point? Describe with sketch how you would determine Dew Point.

4. What part do mineral salts in soil play in plant nutrition? What two different chemical types of substance go to the formation of a salt? Name one substance of each type, and state how with them you could prepare a salt. Name the salt.

5. Describe with sketch an experiment to prove that when hydrogen burns in air, water is formed.

6. How would you prove that when iron rusts:
   (*a*) the iron gains in weight;
   (*b*) something is removed from the air.

7. Why is it necessary that fruits and seeds be scattered? Describe three methods of seed dispersal. Name, sketch and describe the fruit of which the seeds are distributed in each case.

8. Write a note on the modification of plant parts for the purpose of storing food. Distinguish between the terms Annual and Biennial.

9. How would you determine the percentage purity and germination of a sample of seed? How does the percentage germination of the sample so determined compare with the percentage germination of the same sample in the field? Give reasons.

10. Draw up a table that will indicate the differences between fresh and expired air. How does the density of expired air compare with that of fresh air? Give reasons.

11. Answer the following questions with respect to the digestion of food:

(*a*) Why is it necessary to chew food?

(*b*) What is the function of rennin?

(*c*) How is the pancreas situated with regard to the digestive tract? What is its function?

(*d*) What part does the liver play in digestion?

12. Write a note on the circulation of blood in the body. What do you understand by the term pulse? Explain how and why pulse rate during exercise differs from the ordinary pulse rate.