

AN ROINN OIDEACHAIS
(Department of Education).

BRAINNSE AN MHEÁN-OIDEACHAIS
(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1934.

LOWER COURSE.

SCIENCE (Syllabus B).

FRIDAY, 15th 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. Write a short account of an experiment you have seen performed to show that air exerts pressure. Describe a simple apparatus that can be used for measuring the pressure of the air.

2. Two lead cylinders, A and B, each having the same volume, when hung from the scale pans of a balance, maintain the beam in a horizontal position. If cylinder A is immersed in water, the balance is disturbed. Which cylinder is now apparently the heavier? Give the reason for your answer. How would you find the specific gravity of the lead cylinders?

3. Write a short note on the behaviour of water as its temperature is raised from 0° C to 8° C. Account for the formation of ice on the surface of a pond. Mention some effects that would follow if ice started forming at the bottom.

4. What is the principle of the lever? Give an example of a lever in common use. A lever is 3 feet long and weighs five pounds. Where must the fulcrum be placed so that a weight of 300 lbs. at one end shall be balanced by 60 lbs. at the other end? Give sketch to illustrate.

5. State what happens when (a) a candle, (b) phosphorus are burned in air. Describe any experiments you have seen performed in support of your statements.

6. Name any *two* acids (other than nitric acid) and any *two* alkalis with which you are familiar. Describe the chemical and physical properties of each. Tabulate your answer. How is nitric acid prepared?

7. Describe, with the help of a sketch, an experiment you have seen performed to prove that germinating seeds breathe. What conditions are necessary for germination? What evidence have you in support of your answer?

8. What are the main differences between (a) a dicotyledonous seed and a monocotyledonous seed, (b) a dicotyledonous leaf and a monocotyledonous leaf? Use sketches to illustrate your answer.

9. Give a short account of the occurrence and function of *five* of the following:—(a) stomata, (b) root-cap, (c) petals, (d) tendrils, (e) root-hairs, (f) lenticels, (g) sepals.

10. Make a labelled drawing showing what can be seen in a kidney cut through symmetrically. What is the function of the kidney?

11. Describe, with sketches, the bones surrounding the thoracic cavity and show how they are attached to one another.

12. Describe the organs of respiration and illustrate your answer. How does expired air differ from ordinary air?