AN ROINN OIDEACHAIS
(Department of Education).

BRAINSE AN MHEÁN-OIDEACHAIS
(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1930.

SCIENCE (Syllabus D).

WEDNESDAY, 18th JUNE.—MORNING, 10 A.M. TO 12 NOON.

[Not more than *six* questions to be attempted. Illustrate your answers wherever possible.]

1. How would you find the density of milk (1) by a method involving the use of a balance, (2) without using a balance? (40.)

2. Describe an experiment to show that water will boil at a temperature below 100°C. (40.)

3. State clearly what occurs when (1) washing soda is heated, (2) zinc is acted upon by hydrochloric acid, (3) a stream of carbon dioxide is passed into lime water. (40.)

4. What is the temperature on the Fahrenheit scale of the human body? Describe and explain the use of a clinical thermometer. (40.)

5. State in tabular form the chief points of difference between solids, liquids and gases. (50.)

6. Indicate the relative positions of the power, resistance and fulcrum when using (1) a scissors, (2) a poker in stirring the fire, (3) a pair of sugar tongs, (4) the forearm in lifting a book, (5) a pump handle. (50.)

7. Why is a scald from the steam of boiling water more severe than one from boiling water itself? Describe an experiment to show that a small weight of steam at 100°C., in condensing into water, produces a greater heating effect than the same weight of boiling water. (50.)

8. A saucepan containing a quantity of hot water is allowed to cool. In what ways is the heat lost? What ordinary precautions may be taken to retard the loss of heat? (50.)

9. How would you show (1) that a continuous supply of air is necessary for burning, (2) that a metal when heated strongly in air usually increases in weight, (3) that this increase comes from the air? (50.)

10. Enumerate the chief properties of (*a*) acids, (*b*) alkalies. Describe how you would make a neutral salt, using an acid and an alkali. (50.)

11. Why is respiration necessary in the human body? What circumstances increase the rate of respiration? How are the waste materials formed during respiration removed from the body? (50.)

12. State the functions of the skin, and explain how it acts as a regulator of the body temperature. Explain why it is usual to wear more than one layer of clothing. (50.)