

AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1949.

SCIENCE Syllabus (D).

FRIDAY, 17th JUNE.—MORNING, 10 TO 12.

[Not more than six questions to be attempted, of which three must be taken from Section I, and three from Section II. Illustrate your answers wherever possible. All questions are of equal value.]

SECTION I.

1. Explain with the aid of a diagram how an ordinary kitchen spring-balance works.

Describe an experiment to demonstrate the principle on which its working is based.

2. Describe, with the aid of a diagram, how you would weigh an object in a liquid.

A piece of glass weighs 10.13 grams in air, 5.90 grams in water, and 5.73 grams in milk. Calculate the densities of glass and milk.

3. Describe the instruments you would use to measure (a) the temperature of the body, (b) the lowest temperature during a frosty night, and tell how you would use them.

4. Explain :—

(a) why some objects in a room feel colder when touched with the hand than others,

(b) why potatoes will boil more quickly in a vessel fitted with a device to retard the escape of steam than in an ordinary vessel,

(c) why bubbles form on the inside and a film of moisture on the outside of a beaker of cold water a short time after it is placed over a lighted burner.

Describe an experiment in support of your explanation in the case of (b).

5. Explain with the aid of diagrams how (a) a simple siphon, and (b) a soda-water siphon work.

SECTION II.

6. Describe and explain the effect of (a) water, (b) heat, (c) hydrochloric acid on each of the following substances: washing soda, baking soda, quick-lime.

7. Explain why breathed air contains more carbon dioxide than ordinary air.

Given a piece of bread, describe how you would use it to prepare a sample of carbon dioxide.

8. Describe with the aid of diagrams the chief bones and muscles in the human arm between the wrist and shoulder.

Show by means of a diagram how the forearm acts as a lever when the arm is being (a) bent, and (b) straightened at the elbow, and mark on your diagram the position of the fulcrum and the directions in which the effort and load act.

9. Explain why a scald from steam is more severe than a scald from boiling water at the same temperature.

Describe the first-aid treatment which you would recommend in the case of a child wearing shoes and stockings who has upset a vessel of boiling water on his feet.

10. What changes take place in milk during souring? Explain the action of sour milk in the making of bread, and describe a laboratory experiment in support of your answer.