

AN ROINN OIDEACHAIS

(Department of Education)

INTERMEDIATE CERTIFICATE EXAMINATION, 1961.

SCIENCE (Syllabus B).

WEDNESDAY, 14th JUNE.—EVENING, 3 TO 5.30.

[Not more than *six* questions are to be attempted. *Two* questions, at least, must be answered from each Section. Illustrate your answers wherever possible.

SECTION I.

1. Describe how you would prepare and collect oxygen in the laboratory.

Give an account of the properties of oxygen. Name the product formed when each of the following is burned in oxygen :—(a) carbon, (b) magnesium. Mention the effect of the product in each case on moist litmus.

[66 marks.]

2. Name any acid and any alkali and give an account of the properties of each.

Describe fully how you would use the acid and the alkali you have named to prepare a salt. Name the salt.

[66 marks.]

3. Describe with the aid of diagrams how you would show experimentally (i) that air has weight, (ii) that air expands on heating, (iii) that air is a mixture.

[66 marks.]

4. Describe how to construct a thermometer and to graduate it to measure temperature from -10°C . to 110°C .

What is meant by the boiling point of a liquid? Describe with the aid of a diagram how you would measure the boiling point of alcohol. What result would you expect?

[67 marks.]

5. Define "specific gravity."

Describe fully an experiment to measure the specific gravity of sand.

If the specific gravity of sand and of oil are 2.6 and 0.8, respectively, find what mass of oil will be displaced by 100 grams of sand.

[67 marks.]

SECTION II.

6. What is meant by photosynthesis? What conditions are necessary for photosynthesis?

Describe essential experiments to show that these conditions are necessary.

[66 marks.]

7. In what part of a plant is each of the following to be found: stoma, anther, lenticel, dormant buds, vascular bundles? Mention the function of each.

[66 marks.]

8. Give a short account of the functions of each of the following parts:—(a) pancreas, (b) stomach, (c) liver, (d) diaphragm.

Draw a diagram to show the situation in the body of these parts relative to one another.

Give a brief account of an experiment to illustrate the action of the diaphragm.

[66 marks.]

9. Give a short account of the composition of the blood. Mention the functions of the blood.

Describe the effect of passing (a) oxygen, (b) carbon dioxide, into newly-shed blood.

[67 marks.]

10. For what purpose do the following plant parts become modified:—leaves, stems, roots?

Name (a) a plant which has modified leaves, (b) a plant which has a modified stem, (c) a plant which has a modified root. In each case mention the function of the modified part.

[67 marks.]