

# AN ROINN OIDEACHAIS

(Department of Education)

INTERMEDIATE CERTIFICATE EXAMINATION, 1960.

## SCIENCE (Syllabus B).

WEDNESDAY, 15th 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. Explain, with the aid of a diagram, (i) how a common pump works, (ii) how a siphon works.

Calculate the greatest depth from which a common pump could raise water when the pressure of the atmosphere is 30 in. of mercury. [Specific gravity of mercury=13.6.]

[66 marks.]

2. Describe the atmospheric conditions under which each of the following occurs :—(i) dew, (ii) fog, (iii) hail, (iv) rain, (v) snow.

Describe how you would measure the dew point.

[66 marks.]

3. State how you distinguish between physical and chemical changes.

Describe what happens in each of the following cases and state whether the change is physical or chemical :—(a) water is boiled, (b) lime-water is exposed to the air for some time, (c) a mixture of sulphur and iron filings is heated, (d) acid is added to an alkaline solution, (e) phosphorus is burned in air.

[66 marks.]

4. Describe fully how you would measure the density of a given liquid (i) by means of a density bottle, (ii) by means of a U-tube.

An object which weighs 10 gms., has a volume of 8 c.c. Calculate (i) its apparent weight in water, (ii) its apparent weight in a liquid of specific gravity 0.8.

If the object floats in a certain solution, what is the lowest specific gravity that solution may have ?

[67 marks.]

5. Give an account of the preparation and properties of hydrogen.

Describe, with the aid of a diagram, how you would burn dry hydrogen and collect the product formed. What does this experiment show ?

[67 marks.]

## SECTION II.

6. Give an account, with the aid of diagrams, of the appearance of the root and stem of any green plant.

State the chief functions of roots and stems.

Give two examples of food storage in plant life.

[66 marks.]

7. What is respiration? Describe an experiment to show that green plants respire.

Describe how you would show experimentally that breathed air contains more carbon dioxide than fresh air. In what other respects does breathed air differ from fresh air?

Describe an experiment (i) to show that green plants respire, (ii) to demonstrate the action of the lungs.

[66 marks.]

8. What is meant by (i) pollination, (ii) fertilization, in plant life? Draw a longitudinal section of the flower of a named plant and name the different parts shown. State the function of each of the parts.

[66 marks.]

9. Describe, with the aid of a sketch, the general structure of (i) the heart, (ii) the kidneys.

Describe the action of the heart.

[67 marks.]

10. (a) Write a note on the importance of each of the following :—  
(i) suitable bodily exercise, (ii) adequate sleep, (iii) keeping the skin clean, (iv) brushing the teeth after meals.

(b) What type of clothing should be worn after strenuous bodily exercise? Give reasons for your answer.

[67 marks.]