

AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1956.

SCIENCE (Syllabus B).

TUESDAY, 12th JUNE.—EVENING, 3 TO 5.

[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 fully, with aid of a sketch, how you would find, by experiment, the mass of one cubic centimetre of air at the temperature and pressure in the laboratory.

Explain how the density of air is affected by change of temperature.

[66 marks.]

2. Explain what is meant by the following terms and in each case give one example to illustrate your explanation :—(a) evaporation, (b) condensation, (c) distillation, (d) boiling, (e) boiling point.

How is the boiling point of a liquid affected by (i) change of pressure, (ii) dissolved solids ?

Describe, with the aid of a sketch of the apparatus, how you would demonstrate the truth of your answer in the case of (i) above.

[66 marks.]

3. State the law of flotation and describe an experiment to test it in the case of any liquid other than water.

Explain how it happens (a) that ice floats in water, (b) that while pieces of glass sink in water, a glass test-tube floats.

A loaded test-tube floats vertically in water with 17 cm. of its length beneath the surface. How much farther will it sink in a liquid of density 0.85 gm. per c.c. ?

[66 marks.]

4. Describe experiments to show the similarity between burning and rusting.

Explain two methods for preventing rusting.

[67 marks.]

5. Describe, with the aid of a sketch, the preparation and collection of oxygen, and give an account of its properties.

Describe and explain the appearance of the flame of a Bunsen burner when the air inlet is (a) shut, (b) open.

[67 marks.]

SECTION II.

6. Show, by means of labelled sketches, the various stages in the germination of the seed of a broad-bean until a seedling is produced, and describe an experiment which would enable you to observe these stages clearly.

What exchange of gases takes place during the germination ?

[66 marks.]

7. Give an account of the chief features of a green leaf and sketch the leaf of any named plant.

Describe an experiment to demonstrate the part played by green leaves in transpiration.

Give one example of a plant having leaves which are modified for the purpose of storing food, and give a brief account of the importance of the food thus stored.

[66 marks.]

8. In the case of each of the following organs describe, with the aid of a diagram, its structure, name one plant which bears it, and state its function in the life of that plant :—(a) tap root, (b) runner, (c) rhizome, (d) tuber, (e) fruit bud, (f) ovary.

[66 marks.]

9. Describe, with the aid of sketches, the general structure of (a) the lungs, (b) the kidneys.

Name the chief substances removed from the body by the lungs and describe fully an experiment in support of your answer.

[67 marks.]

10. Write a note explaining the importance of each of the following :—(a) suitable bodily exercise, (b) adequate sleep, (c) suitable underclothing, (d) keeping the skin clean, (e) brushing the teeth at night before going to bed.

[67 marks.]