

# AN ROINN OIDEACHAIS

(Department of Education)

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INTERMEDIATE CERTIFICATE EXAMINATION, 1959.

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## SCIENCE (Syllabus B).

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TUESDAY, 9th JUNE.—EVENING, 3 to 5.30.

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[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 experiments, one in each case, to show that (i) a solid, (ii) a liquid, (iii) a gas, expands on heating.

Give an account of how you would construct a mercury thermometer and how you would graduate it to read from  $-5^{\circ}\text{C}$ . to  $105^{\circ}\text{C}$ .

Describe how you would measure the boiling point of methylated spirits.

[66 marks.]

2. Describe (a) crystallisation, (b) distillation, giving an example in each case.

Give an account of an experiment to show that the atmosphere contains water vapour. Describe how (i) hail, (ii) rain, (iii) snow, (iv) hoar-frost, occurs.

[66 marks.]

3. Describe how you would use a density bottle to measure the density of (a) a given liquid, (b) lead shot.

An object weighing 3.5 gms. has a volume of 7 c.c. Find its density and find, also, the volume of liquid it displaces when floating in brine of density 1.05 gms. per c.c.

[66 marks.]

4. Give a full account, with the aid of a diagram, of an experiment in which turf (or coal) is heated in the absence of air and the products collected. Describe briefly the products obtained.

[67 marks.]

5. Describe the preparation and properties of oxygen.

Give an account of how you would burn carbon in oxygen, name the product formed and give an account of its properties.

[67 marks.]

## SECTION II.

6. Mention the conditions necessary for the germination of seeds. Describe essential experiments in support of your answer.

Describe how you would find out (i) the percentage purity, (ii) the percentage germination, of a sample of seed.

[66 marks.]

7. Outline the functions of each of the following plant parts :—  
(a) root, (b) stem, (c) leaf, (d) flower.

Describe experiments you have performed in connection with the functions of any *two* of these plant parts.

[66 marks.]

8. What is (i) a fruit, (ii) a seed ?

Give an account of fruit and seed dispersal. Illustrate your answer by means of examples.

[66 marks.]

9. Describe, with the aid of a clearly-labelled diagram, the alimentary canal.

Give a brief account of the functions of its various parts.

[67 marks.]

10. Describe the functions of each of the following :—(i) heart, (ii) veins, (iii) capillaries, (iv) arteries.

How would you distinguish (a) a vein from an artery, (b) venous blood from arterial blood, (c) the right side of the heart from the left ?

[67 marks.]