

AN ROINN OIDEACHAIS  
(Department of Education).

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INTERMEDIATE CERTIFICATE EXAMINATION, 1952.

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SCIENCE Syllabus (D).

WEDNESDAY, 18th JUNE.—EVENING, 3 TO 5.

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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.]

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SECTION I.

1. What is meant by density ?

Describe fully two different methods for measuring the density of milk.

Explain how the density of milk would be affected by the addition of water to it.

[66 marks.]

2. Define (a) lever, (b) fulcrum, (c) moment of a force.

Describe an experiment to demonstrate the law of the lever.

Explain, with the aid of a diagram, how the principle of the lever is applied (i) in a scissors, (ii) when a person is bending his arm at the elbow. In each case show on your diagram the position of the fulcrum and, also, the position and direction of each of the forces acting.

[66 marks.]

3. Describe experiments, one in each case, to show (a) that the atmosphere contains water vapour, (b) that heat is absorbed during evaporation, (c) that water expands on freezing.

Give one example in everyday life of each of these phenomena.

[66 marks.]

4. Distinguish between conduction of heat and convection of heat.

Describe two experiments to show that water is heated mainly by convection of heat.

Explain (a) why a wire gauze is placed under a beaker of water before applying heat, (b) why it is recommended to put a silver spoon into a glass before pouring hot water into the glass, (c) why the flame of a match remains erect no matter how the match is turned.

[67 marks.]

5. Distinguish between boiling and evaporation.

Define boiling point and describe, with the aid of a diagram, how you would measure the boiling point of a given liquid.

Explain how a pressure cooker works and describe a laboratory experiment in support of your answer.

[67 marks.]

## SECTION II.

6. Show, by means of a diagram, the internal structure of the heart and explain how the heart acts in circulating the blood. What are the functions of the blood?

[66 marks.]

7. Describe how you would prepare and collect hydrogen in the laboratory and give an account of its properties.

Describe, with the aid of a diagram, how you would burn hydrogen in the air and how you would identify the product formed.

[66 marks.]

8. Describe, with the aid of a diagram, how you would prepare and collect oxygen in the laboratory. Tell how you would burn magnesium and carbon in oxygen. Name the products formed and describe the differences between them.

[66 marks.]

9. Give an account of how heat is produced in the human body and of how the skin helps to regulate the temperature of the body.

Discuss the importance of keeping the skin clean and of wearing suitable underclothing.

Describe the first-aid treatment you would recommend in the case of a child whose hand is badly scalded. Give reasons for your answer.

[67 marks.]

10. What is the effect of heat on (a) washing soda, (b) baking soda? Describe experiments in support of your answer.

Mention the purposes for which these substances are used in an ordinary house and explain their action.

[67 marks.]