

# AN ROINN OIDEACHAIS

(Department of Education).

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INTERMEDIATE CERTIFICATE EXAMINATION, 1956.

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## SCIENCE (Syllabus D).

TUESDAY, 12th 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 a lever ?

Describe an experiment to demonstrate the principle on which the action of a lever is based.

Give an account of the muscular action which enables a person to raise himself on his tiptoes. Explain, with the aid of a diagram showing the position of the fulcrum and the directions of the forces, how the principle of the lever is applied in that action.

[66 marks.]

2. Describe experiments, one in each case, to show that (i) water and (ii) air are bad conductors of heat.

Give four examples from everyday life to illustrate the use of bad conductors of heat.

[66 marks.]

3. What is meant by the pressure of the atmosphere ?

Explain, with the aid of a diagram, how a common water pump works and discuss the factors which determine the greatest depth from which it will raise water.

[66 marks.]

4. Describe experiments, one in each case, to show that heat is absorbed (i) whilst ice is melting, (ii) whilst a liquid is evaporating.

What is the absorbed heat called ?

Explain each of the following :—

(i) the film which appears on the outside of a glass when ice is put into it,

(ii) the importance of changing one's underclothing after strenuous exercise,

(iii) the spurting which occurs when damp food is put into hot frying fat,

(iv) how small fires are quenched by spraying water on them.

[67 marks.]

5. Explain the effect, if any, of each of the following on the composition and movement of the air in a room :—(a) a peat fire, (b) an electric fire, (c) a gas cooker, (d) the presence of people.

Explain (i) why the total surface of an electric iron should be bright and polished, (ii) how heat travels from an electric fire to a person seated in front of it.

Describe an experiment in support of your answer in the case of (i) above.

[67 marks.]

## SECTION II.

6. Describe how you would measure the increase in weight of a piece of magnesium which is burned completely in air.

Name the residue formed and describe its appearance.

How do you explain the increase in weight of metals when they are heated in air, and what attempts were made to explain it before Lavoisier's time ?

[66 marks.]

7. Give an account of the properties of (a) tartaric acid, (b) baking soda.

Describe, with the aid of a sketch of the apparatus, how you would collect and examine the gas evolved when a damp mixture of those substances is warmed gently.

Name the gas and give an account of its properties.

Explain one domestic use which is made of the mixture mentioned above.

[66 marks.]

8. What is meant by hardness in the case of water and what causes it ?

Explain the effect of each of the following on hard water :—(a) boiling, (b) washing soda, (c) soap.

Describe experiments, one in each case, in support of your answers to (a) and (b).

[66 marks.]

9. Give a general description of the spinal cord and its attachments.

Give a brief account of its functions. Explain how a reflex action occurs.

[67 marks.]

10. Show, with the aid of a diagram, how you would examine a sheep's heart, and describe the blood vessels attached to it.

Explain, with the aid of a diagram, how the heart operates in keeping the blood in circulation.

Write a brief note on the importance of good circulation.

[67 marks.]