

AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1953.

SCIENCE (Syllabus D).

TUESDAY, 16th JUNE.—EVENING, 3 TO 5.

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.]

SECTION I.

1. Describe fully how you would construct a simple mercury barometer and how you would use it to measure the pressure of the atmosphere.

Explain why the pressure of the atmosphere is not constant.

[66 marks.]

2. Describe how you would use a pound weight to weigh about a quarter stone of sugar.

State the principle on which your method is based and describe an experiment to demonstrate it.

[66 marks.]

3. Describe, with the aid of a diagram, a clinical thermometer. Explain how it works and how you would use it to measure the temperature of the human body.

Give a brief account of how the temperature of the human body is regulated.

[66 marks.]

4. Explain what is meant by (a) specific heat, (b) conduction of heat, (c) latent heat, and in each case describe an experiment to illustrate your explanation.

Explain why a pressure cooker is more efficient than an ordinary saucepan.

[67 marks.]

5. Describe how you would measure each of the following so as to obtain a reasonably accurate result: (a) the area of the sole of your shoe, (b) the volume of a knitting needle, (c) the density of a lump of sugar.

[67 marks.]

SECTION II.

6. Define : (a) solution, (b) saturated solution, (c) sublimation, and give one example of each.

Describe how you would obtain a reasonably pure sample of each of the constituents from a mixture of common salt and sand.

[66 marks.]

7. Describe two different methods for preparing carbon dioxide in the laboratory and give an account of its properties.

Explain why breathed air contains more carbon dioxide than ordinary air.

[66 marks.]

8. Explain why rain water is more suitable for washing purposes than well water, and describe an experiment in support of your explanation.

Describe and explain two methods by means of which well water may be rendered suitable for washing purposes.

[66 marks.]

9. What are muscles and what are their functions ?

Show by means of diagrams the chief muscles which a person uses (a) in keeping his body erect, (b) in walking, and explain their action.

[67 marks.]

10. Describe how you would dissect a rabbit with a view to examining (a) the organs of the thorax, (b) the structure of the walls of the thorax.

Give an account of (i) the structure and functions of the walls of the thorax, (ii) the organs situated in the thorax.

[67 marks.]