

AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1951.

SCIENCE Syllabus (D).

WEDNESDAY, 13th JUNE.—MORNING, 10 TO 12.

[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. All questions are of equal value.]

SECTION I.

1. Describe fully how you would measure the weight of a litre of air.

2. A large potato attached to a spring balance by means of a piece of thread is lowered slowly into water until it is completely immersed. Explain the change which the reading of the spring balance undergoes as the potato is being lowered into the water:

Describe how (a) the volume, (b) the density, of the potato could be calculated from readings of the spring balance.

3. What do you understand by temperature?

Describe with the aid of a diagram the instrument you would use and explain how you would use it to measure (a) the temperature of the human body, (b) the temperature of the air in a bedroom, (c) the temperature of fat for frying.

Describe the scale marked on each of the instruments you would use.

4. What do you understand by latent heat?

Describe two laboratory experiments in support of your answer.

Give an account of three every-day examples of latent heat.

5. Explain:—

(a) why a tea-pot should have a polished surface,

(b) how a tea cosy keeps a tea-pot warm,

(c) how the handle of a tea-pot may be prevented from getting too warm.

In each case describe a laboratory experiment in support of your answer.

SECTION II.

6. Sketch the alimentary canal and describe the functions of its various parts.

7. Explain how air is brought into the lungs and, also, how it is expelled from them.

Describe a laboratory experiment in support of your explanation.

Account for the changes which take place in air during respiration.

8. Explain the following terms, giving one example in each case: solution, saturated solution, evaporation, distillation, sublimation.

If you were given a mixture of two liquids, one of which boils at 78°C. and the other at 100°C., describe how you would obtain a fairly pure sample of each from the mixture.

9. Describe experiments to demonstrate the cause of the rusting of iron and explain how the rusting may be prevented.

What causes the tarnishing of metal household utensils and what precautions may be taken to prevent tarnishing? How may tarnish be removed from metal utensils?

10. What are acids? Name three acids used in an ordinary house and tell what they are used for.

Give an account of the preparation and properties of hydrochloric acid and tell how you would use it to prepare a pure sample of common salt.

11. Describe the preparation and properties of sulphuric acid.

12. Describe the preparation and properties of nitric acid.

13. Describe the preparation and properties of carbonic acid.

14. Describe the preparation and properties of phosphoric acid.

15. Describe the preparation and properties of acetic acid.

16. Describe the preparation and properties of lactic acid.

17. Describe the preparation and properties of tartaric acid.

18. Describe the preparation and properties of citric acid.