

**AN ROINN OIDEACHAIS**  
(Department of Education).

**BRAINSE AN MHEÁN-OIDEACHAIS**  
(Secondary Education Branch).

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**INTERMEDIATE CERTIFICATE EXAMINATION, 1931.**

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**SCIENCE (Syllabus D).**

*FRIDAY, 12th JUNE.*—AFTERNOON, 4 TO 6 P.M.

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[Not more than *six* questions to be attempted. All the questions are of equal value. Illustrate your answers wherever possible.]

1. How would you show that air exerts pressure? Describe an instrument used for measuring the pressure of the air.
2. State what instruments you would require and how you would use them to find the weight of a litre of milk. How would you check your result, using a lactometer?
3. Name three sources of carbon-dioxide. State the properties of the gas. Explain the action of carbon-dioxide in the process of bread-making.
4. Explain why ice floats. An ounce of ice at  $0^{\circ}\text{C}$ . is dissolved in ten ounces of water at  $70^{\circ}\text{C}$ ., and the temperature of the mixture is found to be  $56^{\circ}\text{C}$ . What can be learnt from this experiment?
5. Sketch the apparatus you would set up to obtain a sample of the air dissolved in water. What tests would you employ to demonstrate the properties of this air? What purposes are served by the dissolved air?
6. State the general signs and symptoms of a fracture. What general rules should be observed in its treatment?
7. What is the distinction between boiling and evaporation? How can the rate of evaporation be increased? Explain why it is more easy to catch a cold after violent exercise.

8. Explain why milk turns sour. How may the souring of milk be retarded?

9. Explain clearly :—

- (a) why a metal tea-pot should have a brightly polished surface ;
- (b) why a chimney is an essential portion of a fire-place ;
- (c) why zinc is used as a coating to protect iron from rusting ;
- (d) why food should be well masticated.

10. Trace the flow of the blood, and indicate the changes it undergoes, from the time it enters the heart from the large veins until it leaves the heart again by the great artery.

11. What is a nerve ? Explain the difference between a conscious effort and a reflex action. State two definite examples of each kind of action.

12. If you were given a muddy liquid containing soluble and insoluble matter, describe in detail how you would :—

- (a) separate the whole of the soluble portion ;
- (b) obtain a sample of the soluble portion in crystals, if possible.