AN ROINN OIDEACHAIS
(Department of Education).

BRAINNSE AN MHEADHON-OIDEACHAIS
(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1936.

LOWER COURSE.

PHYSICS.

THURSDAY, 25th JUNE.—Afternoon, 1.30 to 3.30 P.M.

Not more than *six* questions may be attempted.
All questions are of equal value.

1. Describe a simple experiment illustrating the linear propagation of light. Explain the production of solar and lunar eclipses and distinguish between the various kinds of solar eclipse that may occur.

2. State the laws of refraction of light. Why is it that a pond appears less deep than it really is? Illustrate your answer by a diagram.

3. Explain the terms real image and virtual image. Draw diagrams showing how a virtual image is formed by (*a*) a concave lens and (*b*) a convex mirror. Find the position of the image of an object which is placed at a distance of 30 cms. from a concave lens of focal length 10 cms.

4. Describe the astronomical telescope and explain its action. Draw a diagram showing the paths of the rays from a distant object to the observer's eye.

5. Define potential energy and kinetic energy and give four examples of the transformation of either form into the other. Make a list of some other forms of energy.

6. Describe a method for determining the acceleration due to gravity. State its value approximately.

7. State and define the units in which force and energy are measured. A body of mass 50 gms. falls from rest. Find its velocity, energy and momentum at the end of 4 seconds.

8. Contrast the magnetic properties of soft iron and steel. Which material would you use for making a permanent magnet and which for an electromagnet? Give reasons for your choice.

9. Describe the electrophorus and explain how it may be used as a source of electric charge.

10. State the laws of electrolysis. Explain how the electro-chemical equivalent of copper may be determined. Sketch the circuit.

11. State Ohm's Law. A cell of E.M.F. 1·5 volt and internal resistance 1 ohm sends current through two wires arranged in parallel, the resistance of each wire being 8 ohms. Find the current in each part of the circuit.

12. Describe the construction and action of an electric bell. Illustrate your answer by a sketch.