AN ROINN OIDEACHAIS.

(Department of Education).

BRAINNSE AN MHEADHON-OIDEACHAIS
(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1939.

LOWER COURSE.

PHYSICS.

THURSDAY, 22nd JUNE.—AFTERNOON, 1 P.M. TO 3 P.M.

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

1. Describe how the illuminating powers of two sources of light may be compared. Prove the inverse square law used in photometry.

2. State the laws of reflection of light. Draw a diagram showing the formation of an image in a plane mirror and prove that the image is the same size as the object.

3. Explain the terms real image and virtual image. Draw diagrams showing how (*a*) a real enlarged image, (*b*) a real diminished image. and (*c*) a virtual image can be formed by a convex lens.

4. How is a spectrum obtained ? What kind of spectrum is obtained from (*a*) an electric lamp, (*b*) the sun, and (*c*) a bunsen flame to which salt is supplied.

5. Describe a method for determining the acceleration due to gravity.

6. State and define the units in which force and energy are measured. A body of mass 100 gms. falls from rest. Find its velocity, kinetic energy and momentum when it has fallen 100 cms.

7. Explain the terms work and power.

A cyclist works at 1/12 horse-power. The road is level and wind and road resistance is equivalent to a force of 3 lb. wt. Find the speed of the cyclist.

1 H.P.=550 ft. lbs. per second.

8. Give a short account of the more important properties of a magnet. Discuss any theory by means of which the attraction of a magnet for an unmagnetised piece of iron can be explained.

9. Describe the electrophorus and explain how it is used to obtain electric charges.

10. State the laws of electrolysis. Explain what happens when an electric current passes through acidulated water (platinum electrodes) and through copper sulphate solution (copper electrodes).

11. What are the essential features of an ammeter and of a voltmeter ?

How is each connected in the circuit under test ?

12. Describe some form of dynamo and give the theory of its action.