AN ROINN OIDEACHAIS
(Department of Education).

BRAINSE AN MHEÁN-OIDEACHAIS
(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1927.

PASS

PHYSICS.

THURSDAY, 23rd JUNE—MORNING, 10 A.M. TO 12 NOON.

Not more than SIX *questions may be attempted.*

1. Describe with a diagram any simple form of photometer. State what it is used for and explain how it is used.

2. Describe and explain how a prism splits up white light.

3. What practical uses are made of—(*a*) convex lenses; (*b*) concave mirrors?

Show with a diagram how a virtual image is produced by the former. How would you find the position of this image experimentally?

4. What do you understand by :—

(*a*) moment of a force;

(*b*) triangle of forces;

(*c*) co-efficient of friction?

Illustrate your definitions with examples, giving in each case the values of the quantities involved.

5. What relation exists between the force acting, the mass moved and the acceleration produced? Illustrate your answer with a numerical example.

How would you demonstrate experimentally the truth of what you have stated?

6. Give examples of (*a*) the conversion of mechanical energy into heat; (*b*) the conversion of heat into mechanical energy. Describe briefly how it may be proved that one calorie is equivalent to $4 \cdot 2 \times 10^7$ ergs, and explain clearly what is meant by "calorie" and "erg."

7. How may a conductor be electrified? Show how you would arrange conductors and insulators to store for a short interval a quantity of electricity from a 200 volt source. How might the amount stored be increased? What is the arrangement called?

8. Mention three different effects produced by an electric current. To what useful purposes are these applied?

9. What three experiments would you perform to illustrate fundamental properties of a magnet?

10. A current of 10 amps. is passed through a wire of 5 ohms resistance for 5 minutes; through a second wire of 90 ohms resistance, in a separate circuit, a current of 3 amps. is passed for 3 minutes. What is the potential difference between the ends of each of the wires? In which case is the greater amount of heat produced?