AN ROINN OIDEACHAIS
(Department of Education).

LEAVING CERTIFICATE EXAMINATION, 1952.

PHYSICS.—PASS.

SATURDAY, 21st JUNE.—MORNING, 10 TO 12.

Not more than six questions to be answered.

One question, at least, must be answered from each section.

SECTION I.

1. State and explain the Principle of Archimedes.
A block of wood of volume 400 c.c. floats on water. If the specific gravity of the wood is 0·8, what volume of the wood will be above the surface of the water ?

[66 marks.]

2. A bus weighing 5 tons is travelling at a uniform speed of 30 miles per hour; what is its momentum ?
What constant retarding force would be required to stop the bus (*a*) in 20 seconds, (*b*) in 40 feet ?

[66 marks.]

3. Define *latent heat.* Give two everyday examples to illustrate latent heat.
Describe fully how you would measure the latent heat of fusion of ice.

[67 marks.]

SECTION II.

4. Show by means of diagrams how (*a*) a real enlarged image, (*b*) a real diminished image, (*c*) a virtual image, can be formed by a concave mirror.
An object 1 cm. in height is placed at a distance of 20 cms. from a concave mirror of focal length 30 cms. Find the position, size and nature of the image.

[66 marks.]

5. What is meant by (i) refraction of light, (ii) index of refraction of a medium ?
Describe how you would measure the index of refraction of a transparent liquid.
Water in a well is 10 feet deep. Find the apparent depth of the water if the index of refraction of water is $\frac{4}{3}$.

[66 marks.]

6. Describe the spectrometer and tell how you would use it to measure the deviation of a ray of light on passing through a glass prism.

[67 marks.]

Section III.

7. What are the properties of a magnet ?

How may a piece of soft iron be (*a*) magnetised, (*b*) demagnetised ?

What is meant by (i) declination, (ii) dip ? How do you account for these phenomena ?

[66 marks.]

8. How would you show that an insulated conductor is electrically charged and how would you find out the nature of the charge on it ?

Describe how an insulated conductor may be charged by electrostatic induction (*a*) positively, (*b*) negatively.

[66 marks.]

9. Describe how you would find the electrical resistance of a coil of wire.

The electromotive force of a cell is 1·08 volts and its internal resistance is 0·5 ohms. If the poles of the cell are joined by a conductor of resistance 5 ohms, find the current in the circuit.

[67 marks.]

10. State the laws of electrolysis.

Explain what is meant by the electro-chemical equivalent of an element.

Describe how you would find the electro-chemical equivalent of copper.

[67 marks.]