

AN ROINN OIDEACHAIS
(Department of Education).

BRAINNSE AN MHEÁN-OIDEACHAIS
(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1934.

LOWER COURSE.

PHYSICS.

THURSDAY, 21st JUNE.— AFTERNOON, 1.30 TO 3.30 P.M.

Not more than *six* questions may be attempted.

All questions are of equal value.

1. State the laws of refraction light. Describe an experiment for determining the index of refraction of glass.
2. Show by diagrams how a convex lens can form real and virtual images. A diagram on a lantern slide measures 9 cms. by 6 cms. What will be the dimensions of the image on a screen 10 metres distant from the lantern lens, the focal length of which is 20 cms.?
3. 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?
4. State and define the units in which force and energy are measured. A body weighing 100 gms. falls freely from rest. Find its velocity, energy and momentum at the end of $3\frac{1}{2}$ seconds.
5. Discuss the evidence for the statement that heat is a form of energy. Describe a method of determining the mechanical equivalent of heat.
6. Explain the terms 'acceleration' and 'momentum.' A motor car running at the rate of 15 miles per hour can be stopped by its brakes in 2.7 secs. Find the acceleration and prove that the total resistance to the car's motion when the brakes are on, is approximately one-quarter of the weight of the car.

7. What is meant by 'deviation,' 'dip,' and 'horizontal intensity' of the earth's magnetic field? Show how any one of these quantities can be determined experimentally.

8. Describe the construction and principle of an electro-magnet. Describe any mechanism of which an electro-magnet forms a part.

9. Define the terms 'electrical resistance' and 'specific resistance.' Describe how the resistance of a conductor may be measured by means of a metre bridge.

10. Describe the construction and principle of any apparatus suitable for measuring electric current. Explain the use of shunts in connexion with such an apparatus.