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(Department of Education).

BRAINSE AN MHEAN-OIDEACHAIIS
(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1932.

PASS.

PHYSICS

WEDNESDAY, 8th *JUNE*.—AFTERNOON, 1.30 TO 3.30 P.M.

Not more than *six* questions may be attempted.

All question are of equal value.

1. What is the nature of the image formed by a convex mirror as used by a motorist to observe traffic coming from behind, and what determines its size? Explain with sketch.

2. Describe what is meant by the focal length of a lens? Illustrate by sketches how (*a*) a virtual image, (*b*) a real image of an object can be formed using a suitable lens. Indicate the position of the focus in each case.

3. A rectangular block of glass of refractive index 1·5 and two hollow rectangular glass troughs B and C of the same size as A and containing water refractive index 1·33 and carbondisulphide refractive index 1·63′ respectively are placed side by side. Indicate by means of a diagram the path of a ray of light through A, B, and C, which is incident on A at an angle of about 30° to the normal.

4. What is meant by (*a*) Foot-Pound, (*b*) erg? Assuming 1 foot=30cm., 1lb.=450grm., and 1 grm. weight=1,000 dynes, find approximately the number of ergs in a foot-pound.

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

6. How can it be shown experimentally that the velocities acquired by a ball in rolling down planes of the same height but different lengths are equal? Explain your method.

7. Describe with sketch how you would illustrate in one continuous circuit that an electric current (*a*) produces lines of magnetic force round a conductor, (*b*) causes chemical change in an electrolyte, (*c*) produces heating effect in a conductor.

8. Describe how the ratio between two given resistances may be determined. Two instruments—one an ammeter, the other a voltmeter—have no identifying marks. How would you find out which is the ammeter? The use of another ammeter or voltmeter is not permitted.

9. Three secondary cells in series, an ammeter, a resistance coil, and a voltmeter are suitably joined up so as to enable you to observe the potential difference at the terminals of the cells and the current in the resistance coil. Sketch the circuit. What differences would you expect to observe in the readings of the ammeter and voltmeter, respectively, if one of the cells was reversed? Explain your answer.

10. Describe two experiments illustrating electro-magnetic induction. State the elements which cause it in each case.