AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1950.

SCIENCE (Syllabus E).

THURSDAY, 15*th JUNE*.—MORNING, 10 TO 12.

[Not more than *six* questions to be attempted. Illustrate your answers wherever possible. All questions carry equal marks.]

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1. Give an account of the composition of the atmosphere and refer to simple experiments in support of your answer.

2. What do you understand by "density"?

Describe two ways by means of which the density of a liquid may be measured in the laboratory.

Give an account of the changes in the density of water between 0° C. and 100° C.

3. Give an account of the phases of the moon, and explain with the aid of diagrams how they occur. Explain the connection between the phases of the moon and the variations in the height of full tide.

4. How may it be shown by experiment that light travels in straight lines?

Describe any method by means of which the velocity of light may be measured.

5. What do you understand by refraction of light? What is a lens?

Explain fully, with the aid of a diagram, how a lens may be used (*a*) to set fire to a piece of paper on a sunny day, (*b*) as a magnifying glass for reading small print, (*c*) to form on a screen an enlarged image of a small object.

6. Explain how sound is produced and how it travels to the ear.

Describe a laboratory experiment to show that sound can be reflected.

Mention and explain two everyday examples of the reflection of sound.

7. Distinguish between a magnetic substance and a magnet. Give an example to illustrate your answer.

Describe the tests you would perform to ascertain if a given piece of metal is (*a*) a magnetic substance, (*b*) a magnet.

Write a note on how the phenomenon of magnetism may be explained in a simple way, and describe experiments in support of your answer. Explain the function of a magnetic "keeper."

8. Describe with the aid of a diagram the structure of an electric lamp and explain how it works.

Show by means of a diagram (*a*) how the electric lamps in an ordinary house are connected to the mains, (*b*) how the switches and fuses operate.

9. Show with the aid of a diagram the structure of an electric bell and explain how it works.

10. Describe (*a*) how a simple electric cell may be constructed in the laboratory, (*b*) how it may be shown that an electric current flows through a wire connecting its poles, (*c*) how the direction of the current in the wire may be ascertained.

What changes take place in such a cell when it is producing electric current?