

AN ROINN OIDEACHAIS

(Department of Education.)

INTERMEDIATE CERTIFICATE EXAMINATION, 1944.

SCIENCE (Syllabus E).

TUESDAY, 20th JUNE.—MORNING, 10 TO 12.

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

1. Name the three states of matter and describe as fully as you can how they differ from one another. Mention two properties which they have in common.

Name a common substance which can exist in all three states under certain conditions, and describe how it may be transformed from one state into another.

2. Give an account of the size, shape, and chief movements of the earth.

3. Describe two simple experiments to show that light travels in straight lines.

Explain why the apparent diameters of the sun and moon are approximately equal.

What is the approximate distance of the sun from the earth? Knowing this distance, how may the diameter of the sun be measured?

4. Describe the different ways of producing heat.

Distinguish clearly between quantity of heat and temperature and illustrate your answer with examples.

Mention some effects of changes in the temperature of the atmosphere.

5. Explain how sound is produced and how it is transmitted from its source to the ear. In what way is the transmission of sound affected by changes in atmospheric conditions?

What determines the loudness, pitch, and quality of a musical note?

6. Describe what happens when a beam of white light passes through (a) a rectangular slab of glass, (b) a thin triangular prism of glass. Illustrate your answer by means of diagrams. The base of a glass prism is in the shape of an isosceles right-angled triangle. Show by means of diagrams the paths of rays of light through the prism when the rays enter perpendicular to the faces.

Describe briefly any appliance in which a glass prism is used and explain the use of the prism.

7. Given a bar of iron AB describe how it could be magnetised using (a) a given magnet, (b) a hammer, (c) a simple electric cell so that the end A should have north-seeking polarity.

Explain the use of a magnet in navigation and mention any disadvantages pertaining to its use.

8. Describe with the aid of a diagram a simple telegraphic circuit and explain as fully as you can how its various parts work when it is in operation.

9. Show by means of a diagram the wiring system of a small house comprising two rooms, in each of which there is an electric lamp, and a kitchen in which there is a lamp and also a cooker. Indicate clearly on the diagram the position of meters, fuses and switches and briefly explain their use.

10. Describe with the aid of a diagram an ordinary weather glass (aneroid barometer) and explain how it works. Tell how it may be used to measure approximately heights above sea-level.