

AN ROINN OIDEACHAIS.

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1956.

SCIENCE (Syllabus E).

TUESDAY, 12th JUNE.—EVENING, 3 TO 5.

[Not more than six questions to be attempted. Illustrate your answers wherever possible.]

1. State the law of flotation and describe an experiment to demonstrate it.

Describe a direct-reading hydrometer and explain how it may be used to measure the density of a liquid.

[66 marks.]

2. Describe fully, with the aid of diagrams, (a) a mercury barometer, (b) an aneroid barometer.

Explain how an aneroid barometer works.

Give an account of any use which may be made of barometric readings.

[66 marks.]

3. Give an account of the motions of the earth and of the moon. State the relative sizes of the earth, the sun and the moon.

Show, with the aid of diagrams, how (a) day and night, (b) the seasons, occur.

[66 marks.]

4. In regard to heat, what is meant by (a) conduction, (b) convection, (c) radiation? Give two examples of each of these phenomena from every-day life.

Give an account of any laboratory experiment which demonstrates convection.

[66 marks.]

5. Describe how a mercury thermometer is graduated to read in degrees centigrade.

Compare the Fahrenheit and centigrade scales.

What reading on the Fahrenheit scale corresponds to $60^{\circ}\text{C}.$?

What reading on the centigrade scale corresponds to $23^{\circ}\text{F}.$?

At what temperature will Fahrenheit and centigrade scales show the same reading?

[66 marks.]

6. Describe, with examples, how sound is produced and give an account of how sound is propagated.

Describe experiments to show the similarity between the reflection of sound and the reflection of light.

[66 marks.]

7. Describe how shadows are produced.

Explain the terms :—(a) umbra, (b) penumbra.

Give an account of how the illuminating power of two lamps may be compared.

[67 marks.]

8. State the three chief effects of an electric current and give two examples of the application of each effect.

Give a detailed description of an electric light bulb and explain how it works.

[67 marks.]

9. Write a short note on any three of the following :—

- (a) conductors of electricity,
- (b) non-conductors of electricity,
- (c) transformers,
- (d) fuses.

Indicate the use and importance of each of the three you select.

[67 marks.]

10. Describe, with the aid of a clearly-labelled diagram, an electric bell circuit and explain how the bell works.

[67 marks.]