AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1951.

SCIENCE (Syllabus E).

WEDNESDAY, 13th JUNE.—MORNING, 10 TO 12.

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

---

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

Describe an hydrometer and explain how it works. Give one example of its use in every-day life.

2. Describe, with the aid of a diagram, an ordinary spring balance and explain how it works.

Describe how, with the aid of a metre stick and some thread, you would use a spring balance which cannot weigh objects of greater weight than 5 lbs. to find the weight of an object which weighs more than 5 lbs.

3. Write notes on the origin and action of (*a*) glaciers, (*b*) volcanoes.

Give a brief account of evidence to show that there was (i) glacial action, (ii) volcanic action, in Ireland in the past.

4. Describe experiments, one in each case, to demonstrate convection currents in water and in air.

Explain how (*a*) land and sea breezes, (*b*) trade winds, occur. Give a brief account of how the climate of Ireland is affected by winds.

5. What are the relative sizes of the sun and the earth and what is the approximate distance between them?

Tell how heat and light travel from the sun to the earth and how it may be shown (*a*) that they travel at the same speed, (*b*) that they are refracted in the same way on passing through a glass lens.

Explain why the temperature at the top of a mountain is lower than at its base.

6. Give examples to show how sounds are produced.

What is the difference between a noise and a musical note and what determines the pitch and loudness of a musical note?

Describe, with the aid of a diagram, the violin and give an account of the principles on which its construction and working are based.

7. Give an account, with the aid of diagrams, of two different ways in which an iron bar may be magnetised.

Explain your method in each case and show clearly on your diagrams the position and nature of the poles.

Describe and explain what may be observed when a bar magnet suspended at its centre of gravity so that it can turn in a vertical plane is brought along the surface of the earth from the south pole to the north pole.

8. Describe how it may be ascertained by experiment whether a substance is a conductor or non-conductor of electricity.

Name two non-conductors of electricity and give examples of their use in every-day life.

Describe a lightning conductor and explain its action.

9. Describe, with the aid of diagrams, the various parts of a simple telephone circuit and explain how the telephone works.

10. What effects are produced when a current of electricity is passed through (*a*) a thin wire, (*b*) acidulated water?

Describe experiments in support of your answer. Describe any electrical appliance or process which depends for its action on one of these effects.