

AN ROINN OIDEACHAIS

INTERMEDIATE CERTIFICATE EXAMINATION, 1962.

SCIENCE (Syllabus E).

THURSDAY, 14th JUNE. - Evening, 3 to 5.30.

(Not more than six questions to be attempted. Illustrate your answers wherever possible.)

1. Define density.
Describe fully two different methods for measuring the density of a given liquid. (66 marks.)
2. Describe fully the construction and use of a mercury barometer.
Describe and explain the effect of introducing a few drops of water into the barometer. (66 marks.)
3. Write notes on any three of the following:- (i) glaciers, (ii) icebergs, (iii) earthquakes, (iv) volcanoes. (66 marks.)
4. Describe the construction and graduation of a mercury thermometer.
Discuss the advantages and disadvantages of mercury as a thermometric fluid.
What reading on a centigrade scale would correspond to a reading of (a) 77° F., (b) 25° F., (c) -4° F.? (66 marks.)
5. State (i) the laws of reflection of light, (ii) the laws of refraction of light.
Describe how one of the laws of reflection of light may be demonstrated in the laboratory.
Give two examples of refraction of light from everyday life. (66 marks.)
6. Write an account of the production and propagation of sound and explain what happens to the air when sound-waves travel through it.
Describe an experiment to show that sound cannot be propagated through a vacuum.
A man standing 1,650 feet from a cliff hears the echo three seconds after he has fired a shot. Calculate the velocity of sound in air. (66 marks.)
7. Describe a method for measuring the velocity of light. Write down the velocity of light. (67 marks.)
8. What is a magnet?
Describe a method for magnetising a piece of steel (i) by using a bar-magnet, (ii) by using an electric current.
Describe how the magnetic field in the neighbourhood of a bar-magnet may be investigated. (67 marks.)
9. Describe, with the aid of a clearly labelled diagram, a Leclanché cell. Mention what happens in the cell when current is being drawn from it.
Show how an electric current may be used (i) to produce oxygen and hydrogen from water, (ii) to put a coating of silver on a copper object. (67 marks.)
10. Describe, with the aid of a diagram, a dynamo which produces alternating current and explain how it works.
Describe how electricity is transmitted from the generating stations in Ireland to the places where it is required.
A current of 10 amps passes through an electric fire connected to a 220 volt circuit. Find the cost, at 1.5d. per unit, of the electricity required to keep the fire working for 24 hours. (67 marks.)