

INTERMEDIATE CERTIFICATE EXAMINATION, 1962.

SCIENCE (Syllabus B).

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

(Not more than six questions are to be attempted. Two questions, at least must be answered from each Section. Illustrate your answers wherever possible.)

SECTION I.

1. Describe how you would prepare and collect hydrogen in the laboratory.
Contrast the properties of hydrogen with those of (a) carbon dioxide,
(b) hydrogen chloride. (66 marks.)
2. Describe how you would prepare nitric acid in the laboratory.
Give an account of the properties of nitric acid.
Name one of the elements in nitric acid. (66 marks.)
3. (a) Describe an experiment to find the weight of a litre of air.
(b) How may it be shown that the air contains about one-fifth of its volume of oxygen? Name the other common gases found in the air. (66 marks.)
4. Describe an experiment to show that (a) a metal, (b) a liquid, expands on heating.
Illustrate by means of a rough graph the change in volume of a given mass of water as the temperature is raised from the freezing point to, say, 90°C.
Write brief comments on the important features of the graph. (67 marks.)
5. Describe an experiment to find the specific gravity of (i) a given liquid,
(ii) a small stone.
A stone weighs 160 grams in air, 105 grams in water and 100 grams in brine.
Calculate (a) the volume of the stone, (b) the specific gravity of brine. (67 marks.)

SECTION II.

6. Give an account of the functions of each of the following plant parts:
(a) root-hairs, (b) stems, (c) leaves.
Describe an experiment in support of part of your answer to (c). (66 marks.)
7. Describe how you would test a sample of seed (a) for purity, (b) for germination.
What conditions are essential for the germination of seeds? Describe experiments in support of your answer.
How do germinating seeds affect the air immediately around them? (66 marks.)
8. Describe with the aid of a diagram the flower of the buttercup or the flower of the primrose, and mention the function of each of its parts. (66 marks.)
9. Give an account of the appearance and functions of the following body organs: the lungs, the liver, the heart.
Describe a laboratory experiment to illustrate the action of the lungs. (67 marks.)
10. (a) Describe with the aid of a diagram the arrangement of the bones in one of the legs. Name the principal bones shown.
(b) What ill effects may result from badly ventilated living-rooms?
Give reasons for your answer. (67 marks.)