

SCIENCE - SYLLABUS B

SIX questions to be answered, at least two from Section I and at least one from each of the other two sections.

SECTION I

1. Compare and contrast the variety of organisms (plant and animal) you found in your study of two named land habitats. Give a short illustrated account of the methods you used in studying these habitats.

2. Give a short account of the management of a forest nursery in your school garden under the headings:-  
species, seed-sowing, after-care.

or

Write an account of the value of forestry to Ireland.

3. What types of food constituents are contained in:-  
potatoes, wheat, peas, grass?

Write a short account of the land use of your native parish and state the approximate average yields of the various crops grown.

4. How would you show by experiment that bacteria cause decay? State in what ways decay is beneficial.

Explain the following terms:-

sterilisation, culture medium, inoculation, antiseptic.

5. Write a short account of the life history of the Cabbage Butterfly and answer the following questions:-

(a) What is the difference between the mouth parts of the caterpillar and the mouth parts of the butterfly?

(b) Why do butterflies usually lay their eggs on the underside of the leaf?

6. Write brief answers to any three of the following:-

(a) What is meant by an inherited characteristic?

(b) Give a simple account of one of Mendel's experiments.

(c) What are chromosomes and what are their functions?

(d) Make a list of variations you have seen in (i) cows, (ii) roses.

SECTION II

7. Give the principal properties of each of the elements calcium and phosphorus, naming at least two compounds of each of these elements that have biological importance.

8. Give an illustrated account of an experiment to show that water is composed of hydrogen and oxygen. List the properties of hydrogen.

9. What are carbohydrates and why are they important to man? Describe an experiment you would perform with a view to showing that a named carbohydrate contains carbon and hydrogen.

SECTION III

10. (a) Describe how you would set up a simple mercury barometer and show how you would use it to measure atmospheric pressure.  
(b) Why is mercury, rather than water, chosen as a suitable barometric fluid?

11. Outline, with the aid of drawings, the principle of a simple lever. A uniform metre stick is supported at a point 10 cm. to the left of its centre of gravity. A weight of 20 gm. hung at a point 30 cm. to the left of the centre of gravity keeps the metre stick in equilibrium. Calculate the weight of the metre stick.  
Give examples of levers from (a) everyday life, (b) from the human body.

12. (a) Describe, with the aid of a diagram, a simple experiment which would demonstrate how air currents are formed. What are sea breezes and how are they caused?  
(b) Explain the construction and use of a maximum and minimum thermometer.