

## Section (A) Botany.

1. What are essential organs of a flower? Why are they called essential? Name the different parts of these organs. Why are the calyx and corolla not essential? What are they called?
2. Describe the character of a weed you find most troublesome in your garden. Tell whether it is annual or biennial or perennial, whether it is difficult to destroy on account of its seeds or roots or stem, and what the peculiarity is. Or, describe the various parts of the seed.
3. Describe two flowers belonging to the order *compositae* so as to show the characteristic of the order and the differences between the two flowers you select.
4. Describe a moss or a fungus. Or, write a short essay on buds.
5. What is meant by a pericarp, akene, legume, berry, drupe, drupelets? Give examples of fruits that come under the different heads. Why are the strawberry and apple called reinforced fruits? Or, tell what you can about bark bound trees and how to improve them. What is a *callus* and how is it produced?

## Section (B) Agriculture.

1. For what might the following sprays be used; Bordeaux mixture, kerosene emulsion, arsenate of lead? Which are poison? If a spray is not poison how is it effective? Or, describe the course of sap in plants.
2. What diseases of potatoes do you know? Give the characteristic appearance and behavior of any two of them. How are they controlled? Or, tell how bacteria may be harmful and how some other bacteria may be useful.
3. Should you supply the same kind of fertiliser to cabbages as to beans? Discuss your answer sufficiently to show what you know of the principles of soil fertility. Or, discuss the use of air and water in the soil.
4. Tell how you tested milk or saw it tested for butter fat. About how much fat should milk contain? Or, give any facts you can about different breeds of cattle.
5. What are your opinions about daylight saving on a farm? Give reasons for your opinion. Or, what other work do you prefer to gardening and why do you prefer it?

## Section (C) Physics.

1. Give an experiment to show that when anything is weighed in water it will lose a weight exactly equal to the weight of its own volume of water.
2. Why is it that the mercury in a barometer rises higher in a deep valley than at the top of a neighboring high hill?
3. If a pound of ice at  $0^{\circ}\text{C}$  is put into a pound of boiling water at  $100^{\circ}\text{C}$  will its temperature be more or less than  $50^{\circ}\text{C}$ ? Give reasons for your answer. Or, illustrate by an experiment the bending of light.
4. What is a prism and what is a lens? For what are they used? Or, Give an experiment to show that electricity can spread itself over a metal.
5. How is an electromagnet made? Or, how does sound travel? Or, what is meant by radiant heat? In your answer, give an example of the application in every-day life, of the process or action you describe.