

Elementary Knowledge of Agriculture.—For Class D. Time allowed : 3 hours.

[Illustrate your answers with diagrams where possible.]

1. Describe the inflorescence and the flower of any cereal (or grass). Show how fertilisation is effected, and how the seed is formed.
2. Give an account of the chemical composition of plants. Describe fully the experiments which you would employ in illustration of a lesson on this subject.
3. How do plants obtain the carbon required for their growth? Explain how you would carry out, on a satisfactory scale, an experiment illustrating this subject. Mention the conditions necessary to insure success, and show how you could prove the presence of compounds of carbon formed during the experiment. Draw a sketch of the apparatus you would employ.
4. What is humus, how is it formed, and what is its value in the soil? How would you demonstrate the presence of humus in a soil?
5. What do you understand by the term "exhaustion of the soil," and how far is the term correct? To what causes may the exhaustion be due, and in what ways may it be remedied?
6. Give an account of the movements of water in the soil. What are the effects of draining the soil?
7. Explain fully the advantages to be secured by a rotation of crops. Give an example of such a rotation, and comment upon it.
8. What are the chief kinds of nitrogenous manures? State the composition and the sources of the principal artificial manures containing nitrogen.

Elementary Knowledge of Agriculture.—For Class E. Time allowed : 3 hours.

[Illustrate your answers with diagrams where possible.]

1. Describe the structure of the foliage leaf of the bean or of any other plant. What is the use of the foliage leaves? Describe experiments that illustrate your answer.
2. Describe the structure of a seed, and the changes that take place during germination.
3. State what you know of the composition of water. For what purposes does a plant require water?
4. What is the character of the food that plants obtain from the soil? How is the food absorbed?
5. Write an account of the nature and mode of origin of soils. Explain how it is that soils differ so much from one another. What qualities are essential to a good soil?
6. What changes take place in a soil when it is freely exposed to the action of the air?
7. Why is it necessary to use manures? State what you understand by general and what by special manures, and give examples.
8. What is the composition of limestone, quick-lime, and slaked lime? What is the value of lime in agriculture?
9. Write an account of the life history of some insect that is injurious to crops, and describe carefully the changes which it goes through.

English Grammar and Composition.—For Class D. Time allowed : 3 hours.

[NOTICE.—All candidates are required to attempt the spelling and the punctuation exercise.]

1. In the following passages some of the words have an obsolete meaning. In each case substitute the modern word or phrase, and give the present meaning of the old word:—
 - (a.) In man there is nothing admirable but his weakness and ignorance.
 - (b.) Bounty and magnificence are virtues truly regal.
 - (c.) In her relation to the king she was the best pattern of conjugal love and obsequiousness.
 - (d.) The nobility of France were . . . well-bred, very officious, humane, and hospitable.
 - (e.) He bears him like a portly gentleman.
 - (f.) Shepherds lay afield that night
To keep their silly sheep.
 - (g.) The wicked are not secure even when they are safe.
 - (h.) Archbishop Abbot was painful, stout, severe against bad manners, of a grave and voluble eloquence.
 - (i.) Prevent us, O Lord, in all our doings.
 - (j.) Duns Scotus was the wittiest of the school-divines.
2. State the exact grammatical function and the force of the italicised words and phrases in the following sentences:—
 - (a.) He is our subject, Mowbray, *so* art thou.
 - (b.) Jean Paul's works require to be studied as well as read, and *this* with no ordinary patience.
 - (c.) We must allow *what* I have hinted in a former paper, that his language was too much laboured.
 - (d.) Laugh, then, at any *but* at fools or foes.
 - (e.) The soldiers did not know what *it* was to *yield*.
 - (f.) He had been a pedlar from his youth—at least, *so* he frequently asserted.
 - (g.) It happened about the time *when* the grapes grow ripe.
 - (h.) The soldier swore I was either dumb or deaf, if not *both*.