

4. Write an account of the chemical changes produced in nitrification, and state the conditions necessary.
5. Why should light soils not be exposed to a bare fallow?
6. How is superphosphate of lime prepared? State what chemical changes take place during the process.
7. To what crops would you apply the following manures, and how: Nitrate of soda, superphosphate of lime, and kainit?
8. How are soils improved by drainage?
9. How does a cereal crop differ from a root-crop in its effect on the soil, and in the way in which animal food is stored?
10. How would you demonstrate to a class the following:—
 - (a.) That the terms "light" and "heavy" soils do not refer to their actual weight.
 - (b.) That soils contain carbon, iron, and silica.
 - (c.) The process of osmosis.
 - (d.) Germination.

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

[Illustrate your answers with diagrams where possible.]

1. Describe and give examples of different kinds of roots.
2. Write what you know of the assimilation of carbon by plants, and state the conditions necessary.
3. How are soils formed? What conditions determine the different kinds of soil?
4. What do you understand by the exhaustion of soils, and by the term *available* as applied to soil constituents?
5. Describe the effects produced on soils by tillage.
6. How should farmyard manure be treated in order to prevent loss?
7. State the advantages gained by rotation of crops.
8. Write what you know of the wheat-plant and of its cultivation.
9. Name the compounds of lime you are acquainted with, stating the uses to which they may be applied in agriculture.
10. Give the life-history of some insect harmful to plants, and state the means you would adopt to exterminate it.

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

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

- I. (a.) Express the meaning of the following words by equivalent words or phrases of Anglo-Saxon origin: condone, apparatus, eliminate, implicit, mutual, interstices, alternative, antagonist, decimate, retrocession.
- (b.) Comment on the italicized words in the following expressions:—
 - (1.) I am myself *indifferent* honest.
 - (2.) Without *let* or hindrance.
 - (3.) In good *sooth*.
 - (4.) Woe *worth* the chase, woe worth the day.
 - (5.) *Him* listed ease his battle steed.
- II. (a.) Explain the function of the verb *have* and show its force in the following sentences:—
 - (1.) I have a letter.
 - (2.) I have written a letter.
 - (3.) My letter has to go to-day.
 - (4.) My letter has gone.
 - (5.) I have come to post it.
- (b.) Parse *what* in the sentences—
 - (1.) I will tell you what.
 - (2.) He was somewhat late.
 - (3.) What o'clock is it?
 - (4.) What man is this?
 - (5.) What with the wind and the rain, it was not easy to get on.
- III. In the following passages there are inaccuracies or inelegancies of expression. Rewrite each passage. Explain clearly the principles violated, and give rules for avoiding similar errors:—
 - (1.) The first railway was called "the Rocket." The rate of its speed was not very great, but has increased very much during the lapse of years.
 - (2.) The progress made in the use of steam and the invention of the railway are therefore most wonderful, and it is surprising to think how the people in former times progressed without the wonderful inventions of later years.
 - (3.) The number of inventions in this century are too numerous to mention, but some of them are as follows: The electric telegraph, the telephone, the phonograph, and others.
 - (4.) We have become not only a better and wiser but also a richer nation.
 - (5.) "You have so imperceptibly got accustomed to this electrical atmosphere that your limbs have become unconsciously inured to the altered conditions and have not apprised you of the change."
 - (6.) The Duke of Newcastle thought only of managing the bribe system properly which Pitt scorned and devised plans for the material and moral good of the nation,