

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

1. Describe the general structure of the stem of any fruit-tree, and show how it increases—(a) in length, (b) in thickness. Explain the operation of grafting.
2. Describe the germination of the seed of—(a) any cereal, (b) a bean or turnip-seed. Call attention to any differences in the modes of germination. What conditions are necessary to germination?
3. Describe the general and minute structure of a foliage-leaf. Explain the relation of the arrangements you describe to the mode of nutrition of the plant.
4. Give an account of the phenomena of diffusion (osmosis), and show what part they play in the life of the plant. Describe the experiments you would employ to illustrate the subject to a class.
5. Explain how rocks may decay to form soils. What agents promote the decay of the rocks? Show how the properties of a soil may depend upon the rock from which it is derived.
6. It is shown by the analysis of a soil that it contains a considerable quantity of the various elements required for the growth of an ordinary crop, but nevertheless the soil does not yield good crops. To what causes might the sterility be due, and by what principles would you be guided in deciding upon the mode of treatment of the soil.
7. Give some account of the nature and mode of multiplication of bacteria. Show the importance of bacteria in the soil.
8. What do you understand by capillary attraction? How does capillary attraction influence the supply of water to a plant? What bearing have the phenomena of capillary attraction upon modes of cultivation?
9. What are the chief sources of phosphatic manures? Describe fully how you would manufacture a small sample of superphosphate, and illustrate its properties experimentally.

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

1. Describe the flower of a plum, peach, or apple, and show how the fruit is formed from the flower.
2. Explain the terms *organic compounds* and *inorganic compounds*, and illustrate them by reference to a plant.
3. Explain the importance of water in the growth of a crop. How does a plant take in water? Why does it require so much water?
4. Describe some soil which you have examined, referring to the mechanical condition or the physical qualities which would influence the growth of a plant.
5. What substances does an ordinary plant require from the soil? In what condition is it supposed that those substances occur in the soil, and how does the plant obtain them?
6. Say how light and warmth influence the growth of a plant.
7. Describe the arrangement and characters of the roots of any plant. State the points to which you would give special attention in transplanting any young plant in order to avoid, as far as possible, any check to its growth. State your reasons.
8. What do you understand by the expression *exhaustion of the soil*? To what causes may the exhaustion be due, and how may it be remedied?
9. What are the general characteristics of farm-yard manure? Under what circumstances should it be used in preference to artificial manures?

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. What do you mean by "case"? Mention, with examples, the various functions of the objective case in English.
2. Explain clearly the difference between the weak and the strong conjugation in English. State whether each of the following forms is weak or strong: told, sought, fought, could, would, caught, held, beat, sat, sped, shod, burst.
3. State the exact grammatical function of the italicised words in the following sentences:—
 - (a.) This is the same *as* that.
 - (b.) A few came—*some* seven, I think.
 - (c.) I am three *pounds* heavier than I was last *May*.
 - (d.) He did his very *best*.
 - (e.) He swore *like* a trooper.
 - (f.) Was anybody *else* there?
 - (g.) The boys had a hard lesson to *learn*.
4. Distinguish between the uses of the various words ending in *ing* in the following sentences:—
 - (a.) Simon Peter saith, I go a *fishing*.
 - (b.) My noble partner you greet with great prediction of noble *having*.
 - (c.) You do draw my spirits from me with new *lamenting* ancient oversights.
 - (d.) While *looking* at the stars, the philosopher fell into the well.
 - (e.) *Barring* accidents, we sail to-morrow.
 - (f.) Oblige me by all *remaining* in your seats.
 - (g.) The arrival of the great man was the signal for much *clapping* of hands.
5. Explain clearly the differences in meaning of the following words, and form sentences illustrating the correct use of each: adversary, antagonist, enemy, foe, opponent.