

4. Explain the most important conditions that should be observed in conducting an experiment. Are the results of a single experiment, without reference to previous investigations, ever sufficient to establish a scientific truth?
5. State the rules of definition, and criticize the following:—
  - (a.) A dog is a domestic animal.
  - (b.) A politician is one who serves his country in order that he may serve himself.
  - (c.) Tranquillity is the absence of unrest.
6. Explain what is meant by "classification," and show how classification grows out of logical division.
7. "Induction is really the inverse process of deduction." (Jevons.) Discuss this fully.
8. Explain the following fallacies, giving an example of each: *Ignoratio elenchi*, *non causa pro causa*, *a dicto secundum quid*, false analogy, mal-observation.

No. 64.—*Domestic Economy and the Laws of Health.*—For completion of Class E, under Regulations now repealed.

*Time allowed: Three hours.*

1. What substances useful as foods are found in the wheat grain? Describe the processes by which bread is made, giving reasons for the different operations.
2. Describe the structure of the stomach, and explain the changes that take place in the food while it is in the stomach.
3. What differences are there between the air of a schoolroom before school and the air of the same room after school? How may these differences be made as small as possible?
4. What do you know of the composition of milk? Give examples showing how diseases may be spread by means of milk.
5. What diets would you suggest for (a) a person suffering from acute illness and (b) a person recovering from severe illness?
6. What are the principles to be kept in view in arranging the drainage of an ordinary dwelling-house?
7. State exactly how you would (a) grill a beef-steak, (b) boil a leg of mutton, (c) boil a cabbage.
8. What is a disinfectant? Mention some of the most useful, and explain how they are used.
9. What is "flannelette," and for what purposes may it be used? Why is it warmer than calico?
10. What is soap, and why is it used in washing? What is the difference between hard soap and soft soap?

No. 65.—*Hygiene.*—For Class C and for Civil Service Senior.

*Time allowed: Three hours.*

1. What do you know of fermentation? Describe the means by which fermentation is induced in the manufacture of beer and wine respectively.
2. State fully what you know of the digestion and absorption of oils and fats. What is their value as food?
3. What is meant by "contagious diseases," and how are they caused? State what you know of scarlet fever and of the precautions that should be adopted when a case occurs.
4. What amount of floor space and of cubic space should be allowed for each child in designing school buildings? Give as nearly as you can the shape and dimensions of the forms and desks best suited for schools.
5. Show, by reference to the structure of the eye, why some persons are short-sighted; and state what precautions should be taken in schools to preserve the eyesight of the children.
6. Describe and sketch the arrangements suitable for the drainage of a two-storied house with water-closet, bath, and sink.
7. What do you understand by "tuberculosis"? What steps are being taken to prevent its increase in New Zealand? Discuss the possibility of its complete eradication.
8. What do you know of the composition of milk? What changes is milk liable to undergo during transit from the dairy to the customers, and what measures should be taken to prevent such changes?
9. What are the disadvantages of ordinary open fire-places? Sketch and describe some form of stove in which the same fire is used to warm the room by radiation and to heat the fresh air admitted to the room.

No. 66.—*Agriculture.*—For Class D.

*Time allowed: Three hours.*

1. Describe the effects that a heavy undrained soil would have on the growth of three different plants cultivated, A for its leaves, B for its root, and C for its fruit.
2. To what disadvantages are light soils subject from an agricultural standpoint? How may these disadvantages be minimised?
3. Give notes of a lesson to exhibit to a class the effects of (a) lime and (b) superphosphate on plant growth, and to demonstrate their utility in agriculture.