3. Write an account of the life-history of a frog.

4. Write a description of the external and internal structure of the fore limb of a rabbit and of the wing of a bird. Point out any agreements between those two organs.

5. Give a brief description of the external features of a living whelk.

6. What do you understand by "excretion"? Describe the organs of excretion in a frog or in a rabbit.

7. Give some account of the important external characters of the *Insecta*. Refer to any New Zealand representatives in illustration, and make sketches, if possible, of those to which you refer.

8. State exactly and in detail the procedure you would follow in dissecting a rabbit so as to display its heart and see the origins of the arteries. Make a drawing of the heart as seen from the ventral surface, labelling all the parts.

No. 58.—Zoology.—For Class C and for Civil Service Senior.

Time allowed: Three hours. [*N.B.—Any diagrams that you may draw to illustrate your answers should be executed neatly, and on a fairly large scale; do not squeeze them into the text, but allow yourself plenty of room. The use of coloured pencils is recommended.*]

1. Describe, with drawings, a transverse section across *Hydra*, showing details of structure. State your reasons, from any facts known about *Hydra*, for regarding this organism as an animal; and discuss its systematic position in the animal kingdom.

2. Write an account of the structure and life-history (including general physiology) of *Bacterium*. Give reasons for considering it to be more nearly related to *Haematococcus* than to *Amoeba*.

3. Draw fully labelled diagrams to illustrate the arrangement of the vascular system and the respiratory system in the mussel, the crayfish, and the dogfish. Indicate, by arrows, the course taken by the blood; and state the condition of the blood in the various parts of the system.

4. What do you understand by "excretion"? Briefly describe the form and position of the "excretory organ" in *Amoeba*, the mussel, and the crayfish.

5. What are the principal characters of the groups (*a*) *Platyhelminthes*, (*b*) *Annelida*, (*c*) *Arthropoda?* Enumerate the classes included in each group; and give one or more examples of animals belonging to these groups, placing them in their classes as nearly as you can.

6. Refer each of the following animals to its class and "group," giving briefly your reasons: Barracouta, bat, kiwi, lancelet, sea-anemone, snail, starfish, tuatara.

7. State exactly and in detail the processes by which you would (*a*) exhibit the reproductive organs in a crayfish, and (*b*) prepare for microscopic examination a piece of its muscle.

8. Identify, or at least refer to its class, the animal described below: Length from three to four inches; colour greenish, with variable dark markings; skin smooth, moist, soft. The body consists of (*a*) a flattened head bearing a large mouth, a pair of dorsal nostrils, a pair of large lateral eyes, and behind each a tympanic membrane, and of (*b*) a short trunk, supported by two pairs of three-jointed, digitate limbs. The animal possesses a bony internal skeleton, and breathes by means of a pair of lungs.

No. 59.—Elementary Physiology.—For Civil Service Junior.

Time allowed: Three hours. [*N.B.—Attempt all the questions; and illustrate your answers, wherever possible, by diagrams.*]

1. A snail and a thistle live in the same garden: point out the essential differences between them, especially as regards the way in which they obtain the food they require.

2. Explain the naked-eye and microscopic characters of a muscle such as the biceps, and explain how movements of the limbs are effected by means of the muscles.

3. Describe the femur (thigh bone) of any mammal that you have examined, and explain the meaning of the ridges, roughnesses, and smooth surfaces on it.

4. Describe as fully as you can the structure of a typical nerve cell and of the processes that arise from it.

What do you mean by "reflex action"?

5. Enumerate the chief glands connected with the alimentary canal, and state what changes take place in the food while it is in the stomach.

6. Contrast veins and arteries as regards their structure, contents, and functions.

7. Explain how you would proceed to dissect a rabbit so as to expose the viscera in the abdominal cavity. Briefly indicate the relative positions of the viscera that would be exposed.

8. What are the differences between the air drawn into the lungs and that breathed out from them?

No. 60.—Elementary Human Physiology.—For Class D.

Time allowed: Three hours. [*N.B.—Attempt all the questions; and illustrate your answers, wherever possible, by diagrams.*]

1. What do you mean by the "axial skeleton" of a mammal? Enumerate and briefly describe the different parts of the axial skeleton of any mammal you have examined.

2. What are the various ways in which the waste products of the body are eliminated?