



O Level

Biology

Session: 1957 June
Type: Question paper
Code: 30

Archives & Heritage

BIOLOGY**67**

ORDINARY LEVEL

PAPER I

*(Two hours and a half)**Answer five questions.*

Large labelled diagrams should be given where they make the answer clearer.

1. Draw labelled diagrams, one in each case, to show the structure of (a) the shoulder joint, and (b) the elbow joint, of a mammal. Explain how the muscles act on the bones to bring about movement at the elbow.

2. (a) What part does the skin play in regulating the temperature of a mammal?

(b) Give a brief account of the functions of any **one** named hormone and any **one** named enzyme in a mammal.

3. Give an account of the life-history and economic importance of **either** the mosquito **or** the house fly.

4. What are the distinguishing characteristic features (a) in summer, (b) in winter, of any **two** named deciduous trees?

Describe how the following changes are brought about:
(i) secondary thickening, (ii) the formation of bark.

5. Give an account of the pollination of **one**, named, wind-pollinated flower.

What are (a) the methods of dispersal of the seeds of this flower, and (b) the conditions the seeds must have before they will germinate?

6. Describe experiments, **one** in each case, that you would do to find out whether a green plant (a) manufactures starch, (b) evolves oxygen, in sunlight.

State **three** differences between photosynthesis and respiration.

7. Describe the constituents and the physical properties of a sandy soil and a clay soil.

What is the value in agriculture of (a) manuring the soil, (b) the rotation of crops?

8. What is meant by a habitat? Name **five** animals (excluding *Amoeba*, *Paramecium*, *Hydra* and frog) and **five** plants (excluding *Spirogyra* and *Mucor*) which live together in any **one** named natural habitat. Explain any relation they have to their environment and to each other.

BIOLOGY II

ORDINARY LEVEL

JULY, 1957

SECTION A

INDEX NUMBER...../.....

NAME.....

Your answers are to be written in ink.

1. Name **two** different organs found in the thorax of a mammal.

(a) (b)

2. State **three** differences between a molar tooth of a herbivore and a molar tooth of a carnivore.

(a)

(b)

(c)

3. Write down **two** functions of the liver of a mammal.

(a)

(b)

4. (a) List **three** differences between arteries and veins. (b) Name the blood vessels that carry the blood to the kidneys.

(a) (i)

(ii)

(iii)

(b)

5. Give **three** differences in structure between a red blood corpuscle and a white blood corpuscle.

(a)

(b)

(c)

6. Write down an equation to represent respiration.

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7. (a) State **one** function of the iris of the eye. (b) Name the type of lens used to correct short sight.

(a)

(b)

8. Where does the placenta develop in a mammal?

Write down **two** functions of the placenta.

(a)

(b)

9. Write down **three** ways in which a primary wing feather is adapted for flight.

- (a)
- (b)
- (c)

10. State **one** function of the contractile vacuole in *Amoeba* (or *Paramecium*).

11. Write down **three** ways in which fishes are adapted to life in water.

- (a)
- (b)
- (c)

12. Name **one** animal on which *Hydra* feeds.

13. Define osmosis.

14. Name **two** metallic elements required by green plants for chlorophyll production.

- (a)
- (b)

15. Name **three** conditions that favour a high rate of transpiration.

- (a)
- (b)
- (c)

16. Name the growth response made by plant organs, when illuminated from one side.

17. Where would you expect to find *Spirogyra* in nature?

18. Name a saprophyte. Where would you expect to find it growing?

19. Name **two** chemical compounds which are used to supply crops with nitrogen.

20. Name the reagents you would use to test for (a) a reducing sugar, (b) a protein.

- (a)
- (b)

BIOLOGY**68**

ORDINARY LEVEL

PAPER II

*(Two hours)**Answer all the questions.*

Candidates are advised not to spend more than half an hour in answering Section A.

SECTION A

Answer this section on the sheet attached and hand it in with the rest of your answers.

SECTION B

PRACTICAL BIOLOGY*(One hour and a half)**Answer all questions.*

Candidates are expected to use a hand lens.

1. Cut open specimen **D 1** vertically, starting from the base of the flower, to show as much of the structure as possible. Make **one** large, labelled drawing of one half of the specimen after it has been cut. By what method do you consider this flower to be pollinated? [A descriptive account of pollination is **not** required.] Make a **list** of the features of specimen **D 1** which suggest the method of pollination you have stated.

2. (a) Examine specimens **D 2** and **D 3** externally and internally. Make a **list** of the differences in structure that you observe between the specimens. [Drawings **not** required.]

(b) Make a careful examination of the ventral surface of specimen **D 4**. Describe any features you observe. Indicate the position of the segment (or segments) on which each feature you describe is to be found by referring to the number of the segment, starting from the anterior end. [Drawings **not** required.]

3. Make a large, labelled drawing of the left side of specimen **D 5**. What features of this specimen suggest that it was an animal that lived in water and not on land?

ORDINARY LEVEL

D**PRACTICAL BIOLOGY INSTRUCTIONS**

PAPER II

JULY 1957

Each candidate taking the examination, which may be done in an ordinary examination room, is to be provided with a hand lens, a scalpel (or sharp pen knife), two mounted needles, and the following specimens, labelled as shown.

The following specimens are to be provided locally.

For Question B 1. A sweet-pea flower or other large leguminous flower, to be labelled **D 1**.

For Question B 2. (a) A crocus corm, to be labelled **D 2** and a small bulb, to be labelled **D 3**.

(b) A large preserved earthworm with a well defined clitellum and sperm grooves, to be labelled **D 4**.

For Question B 3. A large preserved frog tadpole with well defined hind limbs but *without* fore limbs, to be labelled **D 5**.

In cases of difficulty, specimens **D 2**, **D 3**, **D 4** and **D 5** need only be provided in quantities sufficient to allow each candidate the sole use of the group of specimens required for each question for at least 30 minutes. It will be necessary *for the Supervisor* to arrange for the specimens to be interchanged during the examination.

In order to minimize the disadvantages of a practical examination at which the Examiner is not present, the teacher responsible for the practical examination is asked to complete the attached report form *and return it with the scripts*.

It is recognized that it may sometimes be impossible to provide certain specimens. If substitutions are necessary the specimen selected must be as near as possible to the one that is displaced. **No substitution may be made without first consulting the General Secretary at Syndicate Buildings.**