Write your Examination Number here

AN ROINN OIDEACHAIS

LEAVING CERTIFICATE EXAMINATION, 1980

BIOLOGY—ORDINARY LEVEL

TUESDAY, 17 JUNE—MORNING, 9.30 to 12.30

Answer **six** questions from Part I and **four** questions from Part II.

You should not spend more than 45 minutes on Part I, leaving about 135 minutes for Part II.

PART I (120 marks)

Answer **six** questions. Each question carries 20 marks.
Write your answers in the spaces provided.
Keep your answers short.
Write your examination number at top.
Be sure to return this Part of the examination paper; enclose it in the answer-book you use for answering Part II.

1. Answer four of the following.

(a) The oxygen carrying pigment in human blood is called .....

(b) Scurvy is a disease caused by lack of .....

(c) Name one organ in the human body (other than the heart) to which blood is carried by two vessels. .....

(d) Name one organism which reproduces by budding. .....

(e) Name one substance transported in the phloem. .....

2. Answer each of the following. (Put the symbol ✓ in the box under the correct answer.)

(a) Ptyalin works best at a temperature of

22°C	27°C	37°C	42°C
☐	☐	☐	☐

(b) The mineral element required for bone formation is

Ca	Fe	N	Mg
☐	☐	☐	☐

(c) Which of the following is used to test food for protein?

Fehlings	Iodine	Millons	Sudan III
☐	☐	☐	☐

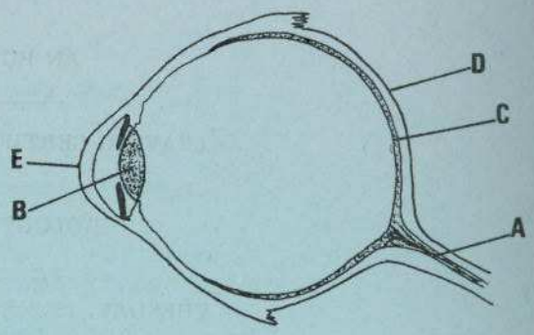
(d) Oxygen is carried from the lungs to the heart by the

pulmonary vein	pulmonary artery	aorta	vena cava
☐	☐	☐	☐

(e) A potato is a modified

root	stem	leaf	petiole
☐	☐	☐	☐

3. The diagram shows a vertical section through the human eye.
Name the parts marked A, B, C, D and E.



A .....

B .....

C .....

D .....

E .....

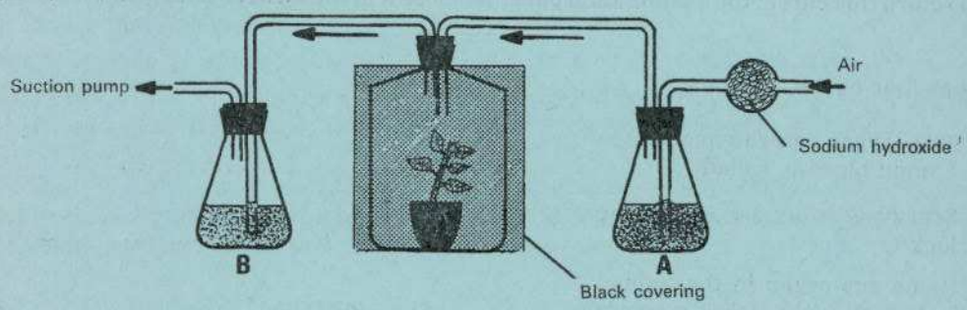
How does the eye focus on near and distant objects?

.....

.....

.....

4. The apparatus below was used in an experiment on respiration.



(a) What hypothesis is being tested? .....

.....

(b) Why is the plant kept in darkness? .....

.....

(c) What is the purpose of the sodium hydroxide? .....

.....

(d) What solutions would you put in flasks A and B?

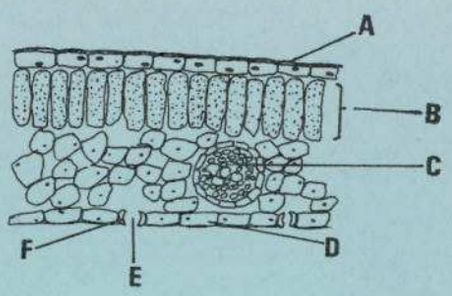
.....

(e) What would you expect to observe in this experiment?

.....

.....

5. Label the following section through a leaf.



A .....

B .....

C .....

D .....

E .....

F .....

What is the function of *F*? .....

.....

What is the function of *E*? .....

.....

6. The diagram shows a transverse section through part of a flowering plant.

(i) What part of the plant is it?

.....

(ii) Label *A*, *B*, *C*, *D* and *E*.

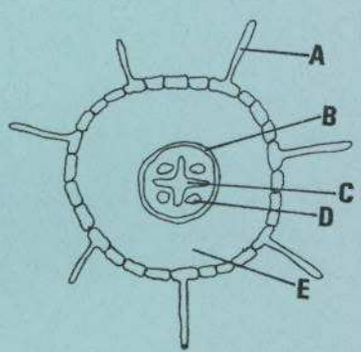
A .....

B .....

C .....

D .....

E .....



(iii) What is the function of *A*?.....

.....

(iv) What is the function of *C*? .....

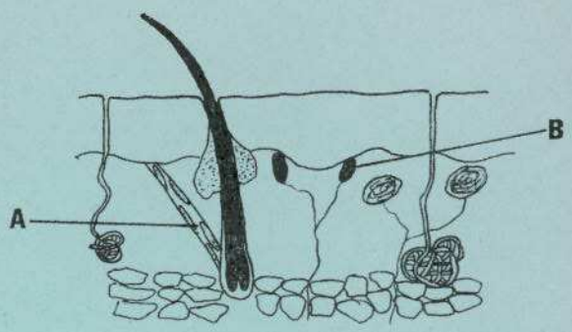
.....

7. The following diagram shows a vertical section through mammalian skin.
Give three functions of the skin.

(i) .....

(ii) .....

(iii) .....



Name the parts *A* and *B*.

A .....

B .....

Give one function of *A*. .....

.....

Give one function of *B*. .....

.....

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Part I is on a separate sheet which provides spaces for your answers. The completed sheet should be enclosed in your answer-book.

Part II (280 marks)

Write your answers to this part in your answer-book.

Answer **four** questions. Each question carries 70 marks.

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8. (i) Draw a large labelled diagram to show the structure of an animal cell as seen under the electron microscope.
Give the functions of four of the cell structures seen.

(ii) What is meant by the term tissue?

(iii) In the case of each of two animal tissues *(a)* describe its structure and *(b)* state its function.

9. (i) Explain the terms *(a)* genotype and *(b)* phenotype.

(ii) Distinguish between haploid and diploid.

(iii) In shorthorn cattle the coat colours red or white show a lack of dominance — that is the heterozygous condition is roan. In addition the polled condition (without horns) is dominant over the horned condition. Give the phenotype and genotype of the offspring of a cross between a polled red male and a horned roan female.

10. (i) Draw a labelled diagram of the external structure of a named insect.

(ii) Explain the term metamorphosis and give an illustrated account of the life cycle of a butterfly *or* bee.

(iii) Write a brief account of the economic importance of insects.

11. (i) Write notes on bacteria under the following headings *(a)* Nutrition, *(b)* Reproduction, *(c)* Importance to Man, *(d)* Conditions which favour their growth.

(ii) Describe an experiment to show that bacteria are present in soil.

12. (i) What is meant by the term menstrual cycle?

(ii) Draw a large labelled diagram of the human female reproductive system and mark the region *(a)* where fertilization normally occurs and *(b)* where implantation occurs.

(iii) Outline the development of the human embryo up to the third month.

13. *(a)* List the major mineral elements required by a plant for healthy growth and outline the reasons why any two of these are necessary.

(b) What are the factors affecting germination of seeds? Outline an experiment to illustrate any one of these.

(c) How can germination be compared to digestion in the human?

14. *(a)* What are the conditions necessary for photosynthesis? Outline an experiment to show that any one of them is necessary.

(b) Give the functions of the human skeleton. List the types of joints found in the human skeleton, say where they are found and describe any two of them in detail.

15. (i) Define *(a)* food chain and *(b)* food web.

(ii) Give two examples of the effect of physical or geographical factors in the distribution of a plant or an animal in a habitat you have studied.

(iii) Describe in detail three pieces of equipment you used in surveying a habitat and explain how each was used.