Write your Examination Number here

AN ROINN OIDEACHAIS

LEAVING CERTIFICATE EXAMINATION, 1979

BIOLOGY—ORDINARY LEVEL

FRIDAY, 15 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) An organism which feeds on dead organic matter is called a .....

(b) Saliva contains the enzyme .....

(c) An example of metamorphosis is to be seen in the life cycle of .....

(d) Gas exchange in the leaf is carried out through the .....

(e) Sugars are translocated from the leaves to the roots in the .....

2. Answer each of the following. In each case put the symbol √ in the box under the correct answer.

(a) Which of the following is sensitive to light?

lens ☐ retina ☐ vitreous humour ☐ cornea ☐

(b) Which of the following is *not* a hormone?

thyroxine ☐ auxin ☐ trypsin ☐ adrenaline ☐

(c) How many chromosomes are normally present in a human cheek cell?

46 ☐ 69 ☐ 23 ☐ 92 ☐

(d) In man lack of vitamin D causes

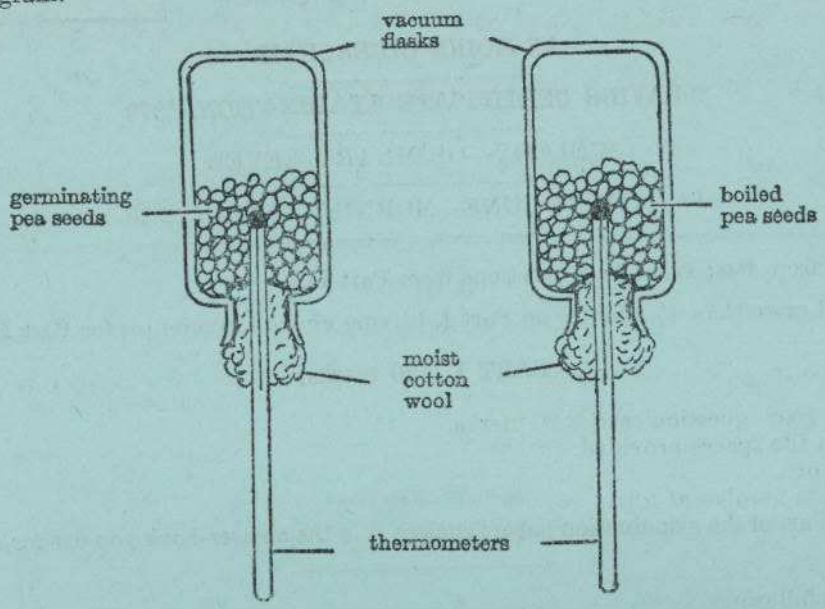
scurvy ☐ night blindness ☐ rickets ☐ beri-beri ☐

(e) In order that joints may move smoothly lubrication is provided by the

dermis ☐ synovial membrane ☐ epidermis ☐ tympanic membrane ☐

(b) preparing a binding and applying it as a dec...

3. In an experiment to test the hypothesis that germinating seeds give off heat, two vacuum flasks are set up as shown in the diagram.



The surfaces of the seeds and the insides of the flasks were sterilised before the experiment. Suggest a reason for this.

.....

.....

Why are vacuum flasks used in this experiment?

.....

State the type of result you would expect to obtain in this experiment.

.....

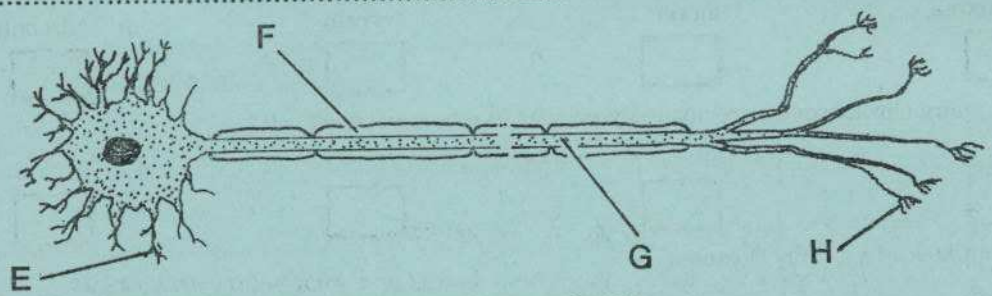
.....

What event in the process of germination corresponds to digestion in animals?

.....

4. What type of cell is shown in the diagram?

.....



Name the parts labelled *E*, *F*, *G*, *H*, and give the function of each.

	Name	Function
E	.....	.....
F	.....	.....
G	.....	.....
H	.....	.....

5. A pea plant of genotype **RrTt** was crossed with a pea plant of genotype **rrtt**. Show the gamete types produced by each parent.

Parents: **RrTt** × **rrtt**

Gametes:..... .....

Distinguish between the members of each of the following pairs:

(i) genotype and phenotype:.....

.....

(ii) dominance and incomplete dominance of alleles:

.....

.....

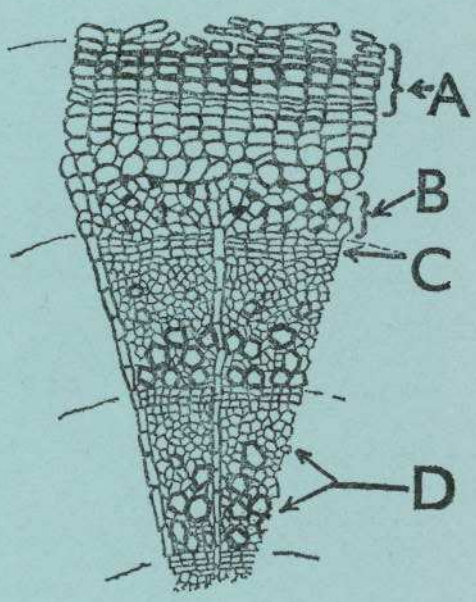
6. The diagram shows portion of a transverse section through a woody stem. Name the parts labelled *A*, *B*, *C*, *D*.

A .....

B .....

C .....

D .....



State the functions of part *D*.

.....

.....

How many years growth are shown in the section?.....

7. State how the diaphragm and the ribs act in increasing the volume of the thorax when an animal inhales.

.....

.....

.....

Within which structure does haemoglobin occur in blood? .....

State the change that occurs in haemoglobin when the blood passes through

the lungs; .....

the body tissues .....

(b) preparing a binding and applying

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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.

8. Give a large labelled diagram of *Spirogyra*. Describe how *Spirogyra* reproduces.
How does a red blood cell differ from a cell of *Spirogyra*?

9. (*a*) There are two types of cell division, mitosis and meiosis. The diagrams show the stages of one of these; the stages are *not* shown in their correct order.

(i) Write the letters *L*, *M*, *N*, *O*, *P*, in the correct order in which the stages occur.

(ii) State which type of cell division is shown.

(iii) Describe briefly what diagram *M* shows.

(iv) Give one difference between the cells that result from mitosis and those that result from meiosis.

(*b*) Explain the term osmosis.

Describe an experiment to demonstrate osmosis.

10. (*a*) Draw a labelled diagram of the male reproductive system of man.

(*b*) What are the main differences between insect-pollinated and wind-pollinated flowers?

11. (*a*) Give the meaning of (i) biosphere, (ii) consumer, as used in ecology.

(*b*) Name an ecosystem you have studied and give a food web for that ecosystem.
State how you recorded the number of each of the different types of organisms present.
Outline how one named plant is adapted to survive the winter in that ecosystem.
Give an example of competition between organisms.

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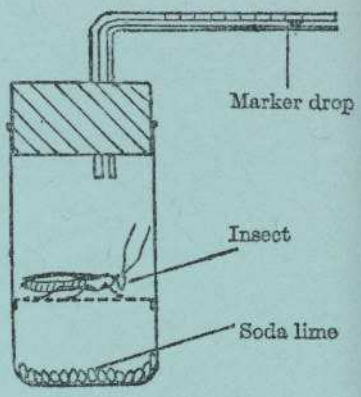
(b) preparing a binding and applying it as a

12. What is meant by the term cellular respiration?

Distinguish between aerobic and anaerobic respiration.

State the importance of respiration to living organisms.

The apparatus shown in the diagram was set up to investigate gas exchange during aerobic respiration at a constant temperature.



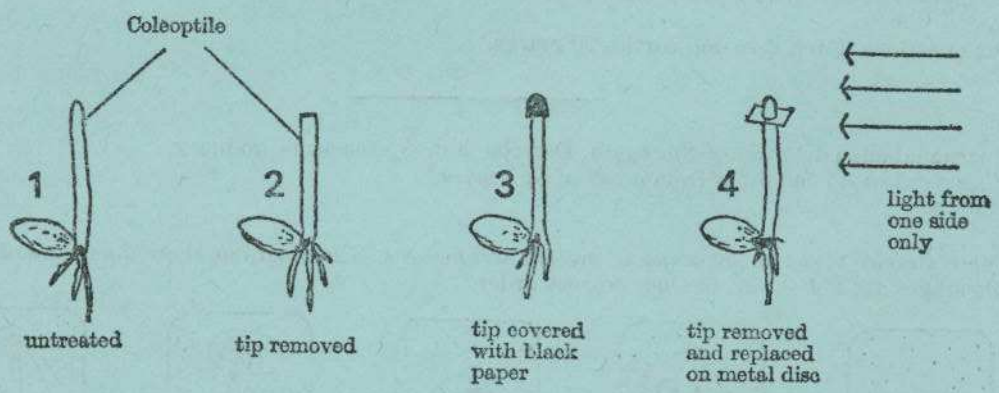
(i) State the function of the soda lime.

(ii) What would you expect to observe in relation to the position of the marker drop during the experiment?
Explain your answer.

(iii) What control experiment would you set up?

13. (*a*) State the functions of the ear. Draw a large labelled diagram of the ear and explain how it carries out one of those functions.

(*b*) Oat coleoptiles were treated as shown in the diagram and then exposed to light from one side only for a period of time.



(i) Which of the coleoptiles will bend towards the light?

(ii) Explain why there is no response to light in the case of *any one* of the coleoptiles that does *not* bend towards the light.

14. (*a*) Explain, giving an example in each case, the terms (i) vaccine, (ii) antibiotic.
Describe an experiment to demonstrate the presence of bacteria on your fingers.

(*b*) Describe the life cycle of the potato blight fungus, *Phytophthora infestans*.

15. List the principal stages in animal nutrition.

Draw a labelled diagram of the human digestive system.

Give an account of what happens to food in the stomach.

Describe a laboratory test to demonstrate the presence of protein in a sample of food.

San fhadtéarma, cad é atá de dhíth, dáirire, ar na tiortha 'tearcthorbartha' ionas go mbeadh a ndóthain