



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2019

Biology

Section A and Section B
Ordinary Level

Tuesday 11 June – Afternoon 2:00 – 5:00

160 marks

Section C is supplied separately

**You must return this examination booklet with the answerbook
used to answer the questions in Section C**

Examination Number					

Centre Stamp



Instructions

Write your Examination Number in the box on the front cover.

There are three sections in this examination.

Section **A** and Section **B** are in this examination booklet.

Section **C** is in a separate question paper.

This examination carries 400 marks in total.

It is recommended that you spend not more than 30 minutes on Section A and 30 minutes on Section B, leaving 120 minutes for Section C.

Section **A**: Answer any **five** questions from this section.

Each question carries 20 marks.

Write your answers in the spaces provided in **this examination booklet**.

Section **B**: Answer any **two** questions from this section.

Each question carries 30 marks.

Write your answers in the spaces provided in **this examination booklet**.

This examination booklet will be scanned and your work will be presented to an examiner on screen. Anything that you write outside of the answer areas may not be seen by the examiner.

Write your answers in blue or black pen. You may use pencil for graphs and diagrams only.

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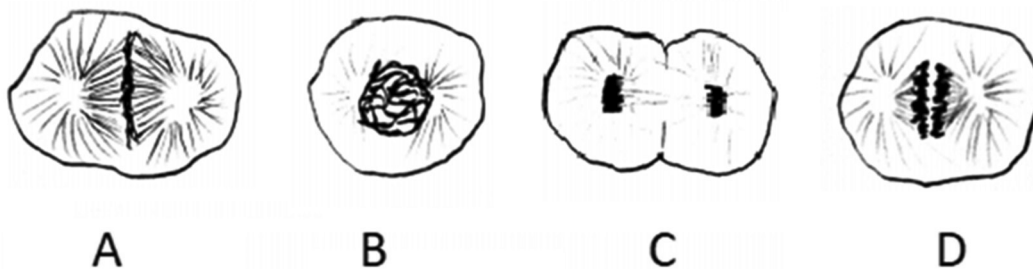


Section A
Answer any five questions.
Write your answers in the spaces provided.

1. Use your knowledge of nutrition to answer the following questions.

- (a) Name a fat-soluble vitamin.
- (b) Name a disorder caused by a lack of this vitamin in the diet.
- (c) Which molecules are proteins made of?
- (d) Name a mineral needed by plants.
- (e) Give an example of a polysaccharide.

2. The diagram shows human cheek cells at different stages during cell division.



(a) Rewrite the letters A, B, C, D in the correct stage order.

(b) What term is used to describe the stage of the cell cycle when the cell is not dividing?

(c) Name the two types of cell division.

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(d) What disease is caused by uncontrolled cell division?

(e) Give two possible environmental causes of this disease.

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3. Choose **each** term from the following list and place it in Column B to match a description in Column A. The first one has been completed as an example.

List: ~~Flower~~ Meristem Dermal Vascular Leaf Lenticel

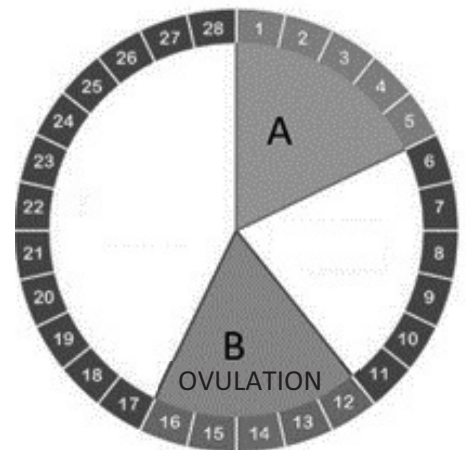
Column A	Column B
Attracts insects for pollination	Flower
(a) Plant organ for photosynthesis	
(b) Tissues for transport in plants	
(c) Tissues on outer plant surface	
(d) A group of rapidly dividing plant cells	
(e) An opening on the stem for gas exchange	

4. The diagram represents the human menstrual cycle.

(a) Does normal menstrual bleeding occur at A or at B?

(b) (i) Place the letter **X** on the diagram to indicate when fertilisation is most likely to occur.

(ii) Place the letter **Y** on the diagram to indicate when implantation is most likely to occur.



(c) Name two hormones that have a role in the menstrual cycle.

1.	2.
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(d) Give a cause of infertility in women.

(e) Suggest a treatment to help a couple to have children in the case of infertility.

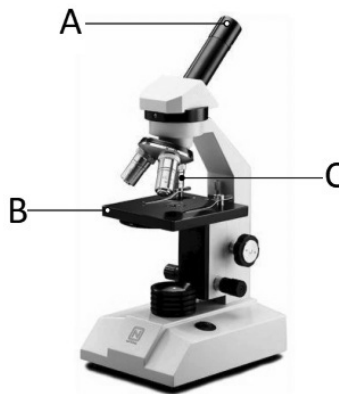
5. Indicate whether the following statements are true (T) or false (F) by drawing a circle around T or F in each case.

Example: Abiotic factors are non-living ecological factors.

T **F**

- (a) The sun is the primary source of energy for our planet. T F
- (b) Pollution is the removal of harmful substances from the environment. T F
- (c) Qualitative surveys record the number of organisms. T F
- (d) Food chains are always more than five organisms long. T F
- (e) Herbivores are animals that feed on plants only. T F
- (f) The functional role of an organism is called its niche. T F
- (g) A producer is always at the start of a food chain. T F

6. The photograph shows a microscope used in a laboratory.



(a) What is the purpose of a microscope?

(b) Name the parts labelled A, B, C in the photograph.

A.	B.	C.
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(c) Why is the low-power lens used first when focusing on cells?

(d) Use the letter F to label the coarse-focus knob on the photograph.

(e) Why would you use a stain when preparing a microscope slide?



Section B

Answer any two questions.

Write your answers in the spaces provided.

Part (a) carries 6 marks and part (b) carries 24 marks in each question in this section.

7. (a) (i) In which plant cell structure does photosynthesis take place?

- (ii) Which biomolecule is made by photosynthesis?

- (b) Answer the following questions about an investigation that you carried out to see how the rate of photosynthesis depends on light intensity or on carbon dioxide (CO₂) concentration.

Which of the two factors did you investigate?

- (i) In the space below draw and label a diagram of the apparatus you used in your investigation.

- (ii) How did you vary your chosen factor?

- (iii) How did you measure the rate of photosynthesis?

- (iv) Describe a source of error in this investigation.



8. (a) (i) Name a food source that is rich in protein.

(ii) Give a reason why the body needs protein in the diet.

(b) Answer the following questions about food tests that you carried out as part of your practical work.

(i) What reagent did you use to test for protein?

(ii) What colour was this reagent before you added it to the food sample?

(iii) What was the final colour of this reagent if protein was present?

(iv) Name a piece of apparatus required to carry out this test in a laboratory.

(v) Describe a safety precaution that should be taken during the investigation.

You tested another food for the presence of reducing sugar.

(vi) What test solution did you use?

(vii) What colour was this solution before you added it to the food sample?

(viii) What was the final colour of this solution if reducing sugar was present?



9. (a) (i) Name the type of muscle found in the heart.

(ii) Name the blood vessel that provides the heart muscle with oxygen.

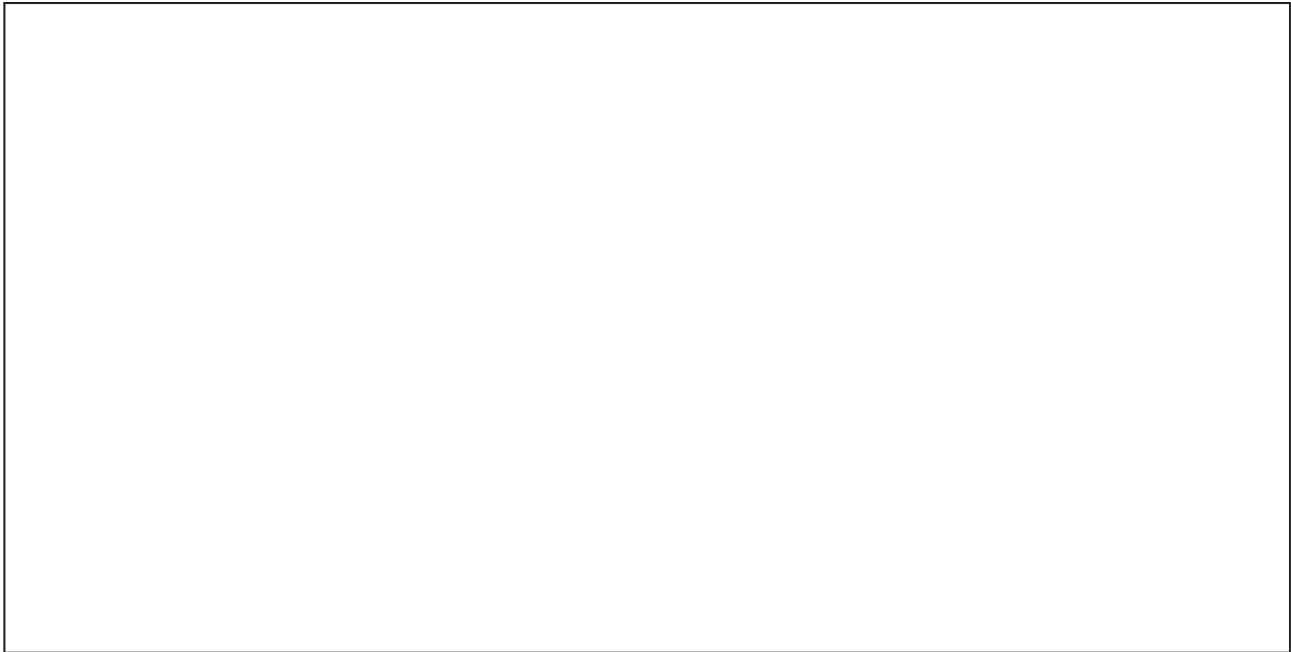
(b) Answer the following questions in relation to the dissection of a heart.

(i) In the space below, draw a diagram of a dissected heart and on it label the following:

Aorta

Bicuspid valve

Left ventricle



(ii) Name a piece of equipment used during the dissection.

(iii) Outline a safety step, specific to this task, to be taken before beginning the dissection.

(iv) Describe how you carried out the dissection.

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