6069.M43C

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Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination

Biology

Sections A and B and Answerbook

Ordinary Level

3 hours

400 marks

Examination Number

Day and Month of Birth

For example, 3rd February is entered as 0302

Centre Stamp

Instructions

Write your Examination Number and your Day and Month of Birth in the boxes on the front cover.

Write your answers to all parts of the examination into this answerbook. This answerbook 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 sketches, graphs and diagrams only.

There are three sections in this examination. Questions for Section **C** are supplied separately but your answers must be written in this answerbook.

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.
Section **B**	Answer any **two** questions from this section. Each question carries 30 marks.
Section **C**	Answer any **four** questions from this section. Each question carries 60 marks.

Section A

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

1. Answer the following parts (a) to (e):

(a) State **one** reason our bodies require food.

(b) Name **one** food which is high in carbohydrate.

(c) Give **one** example of a fat-soluble vitamin.

(d) Name a trace element found in the human diet.

(e) Give **one** role of water in the human body.

2. Indicate whether the following statements are true or false by placing a tick (✓) in the appropriate box in **each** case.

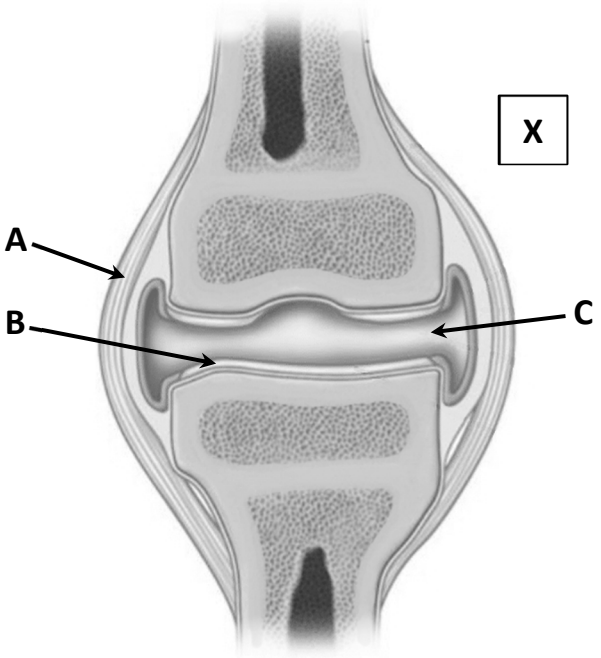
Example:	True	False
The complex organisation of living organisms begins with the cell.	✓	
(a) Enzymes are protein (biological) catalysts.		
(b) Ribosomes make proteins in a cell.		
(c) Energy is produced by the nucleus of a cell.		
(d) An anabolic reaction releases energy within a cell.		
(e) Cell membranes are composed of cellulose.		
(f) Meiosis is involved in gamete formation.		
(g) An organ is composed of a group of tissues.		

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.

~~Vacuole~~ **Salt** **Diffusion** **Osmosis** **Turgor** **Cell wall**

Column A	**Column B**
Storage organelle in plant cells	**Vacuole**
(a) Cellular structure that is fully permeable	
(b) Pressure of the cytoplasm against the cell wall of a plant cell	
(c) Movement of water from a region of high water concentration to a region of low water concentration across a semi-permeable membrane	
(d) Chemical that can be used in food preservation	
(e) Movement of molecules from a region of high concentration to a region of low concentration	

4. Study the diagram of the free moving joint and answer the following questions.



(a) Name tissue **A** and tissue **B**.

A:
B:

(b) **On the diagram above**, draw an arrow from **X** to the location of compact bone.

(c) Name the fluid in **C and** give its function within the joint.

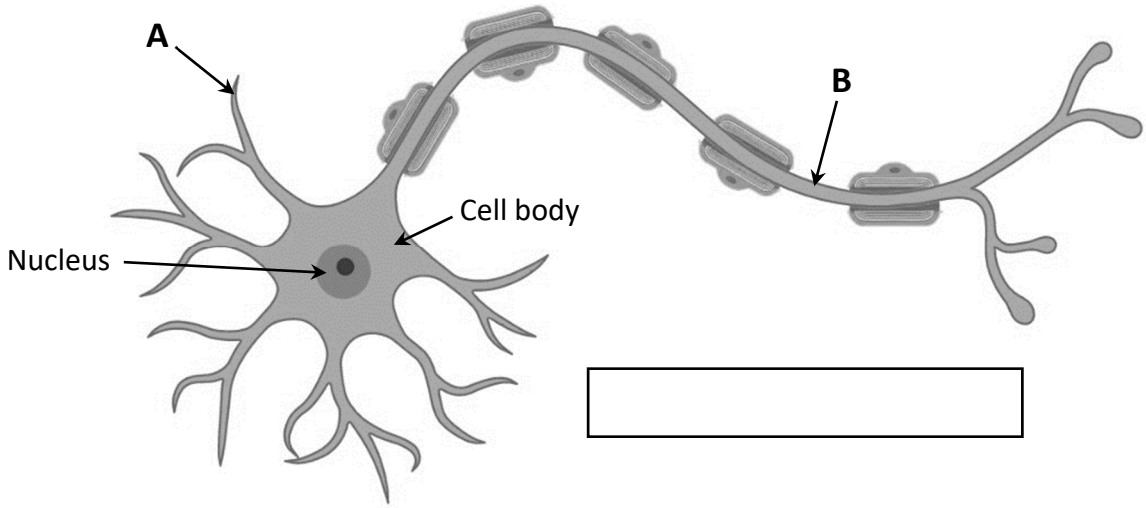
Name:
Function:

(d) Two disorders of the musculoskeletal system include arthritis and osteoporosis.

Write one of these disorders down and give **one** cause **and one** treatment for the named disorder.

Name of disorder:
Cause:
Treatment:

5. The diagram shows a neuron (nerve cell).



(a) Name the parts labelled **A** and **B**.

A:
B:

(b) **In the box on the diagram above**, draw in an arrow to indicate the direction a nerve impulse will travel.

(c) What is the name given to the gap between two neurons in close contact?

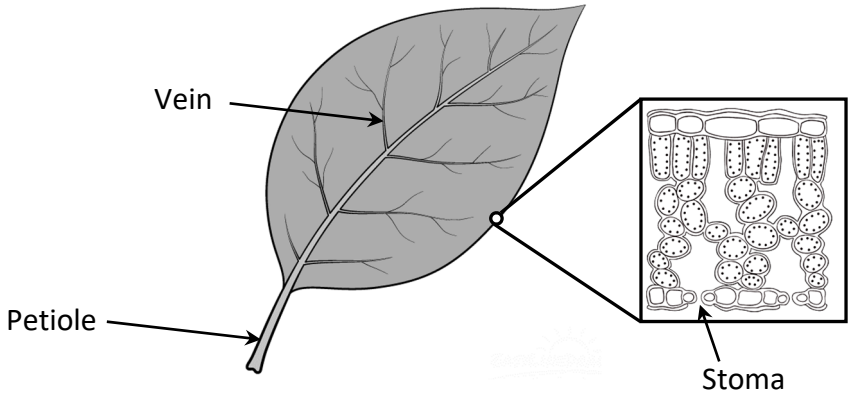
(d) **On the diagram above**, write the letter **X** on the location where you would find neurotransmitter vesicles.

(e) Two disorders of the nervous system include Parkinson's disease and paralysis.

Write one of these disorders down and give **one** cause **and one** treatment for the named disorder.

Name of disorder:
Cause:
Treatment:

6. The diagram below shows a leaf.



(a) (i) What type of leaf venation is shown?

(ii) Name another type of leaf venation.

(b) (i) There are many stomata in leaves.
Name any **two** gases, other than water vapour, that enter or exit the leaf through stomata.

1.
2.

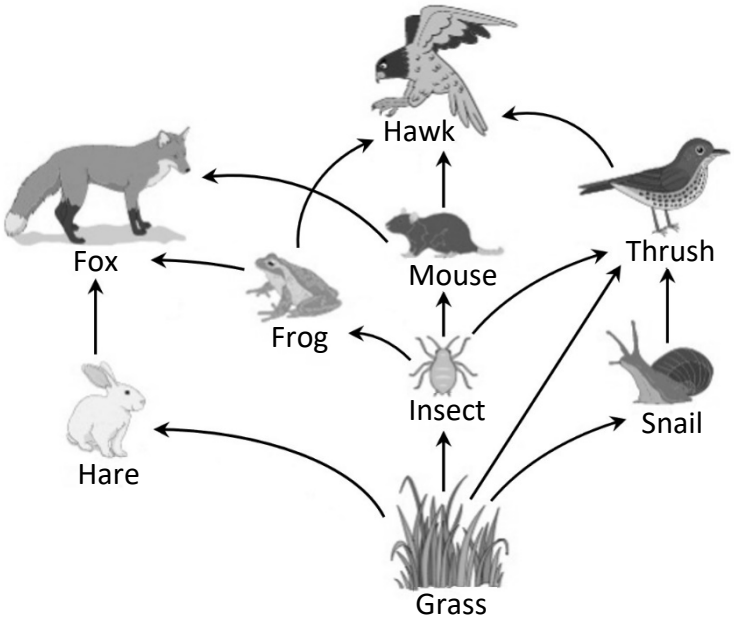
(ii) Name the structures found in stems, equivalent to stomata in leaves, which are involved in gas exchange in plants.

(c) The veins in a leaf transport food and water.

(i) What type of tissue within the veins of the leaf transport food material?

(ii) What type of tissue within the veins of the leaf transport water?

7. Study the food web shown below and answer the questions that follow.



(a) Name a herbivore from the food web.

(b) Name a carnivore from the food web.

(c) Name an organism from the food web that is both a predator and prey.

(d) Write down any **one** food chain from the food web.

(e) Give the ecological term used for an organism that eats both animals and plants.

(f) What term is given to the feeding levels in a food chain?

(g) What might happen to the snail population if the thrush population decreased?

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.

8. (a) From your knowledge of ecological surveys, explain the terms, *quantitative* **and** *qualitative*.

Quantitative:
Qualitative:

(b) Answer the following questions in relation to a quantitative survey of plants that you have carried out.

(i) Name **one** plant you used in your quantitative survey.

Named plant:

(ii) What did you use to identify the plant you named at part (b) (i) above?

(iii) Describe how you carried out the quantitative survey of the named plant.

(iv) Describe briefly how you presented your data.

(v) Suggest **one** possible source of error in your survey.

9. (a) (i) Enzymes are essential for metabolism. Explain the term *metabolism*.

(ii) Explain why biological washing powders containing enzymes are good at removing food stains from clothes.

(b) Answer the following questions in relation to practical work you carried out to investigate the effect of pH on the rate of enzyme activity.

(i) Name the enzyme that you used.

(ii) Name the substrate that you used for the named enzyme in part (b) (i) above.

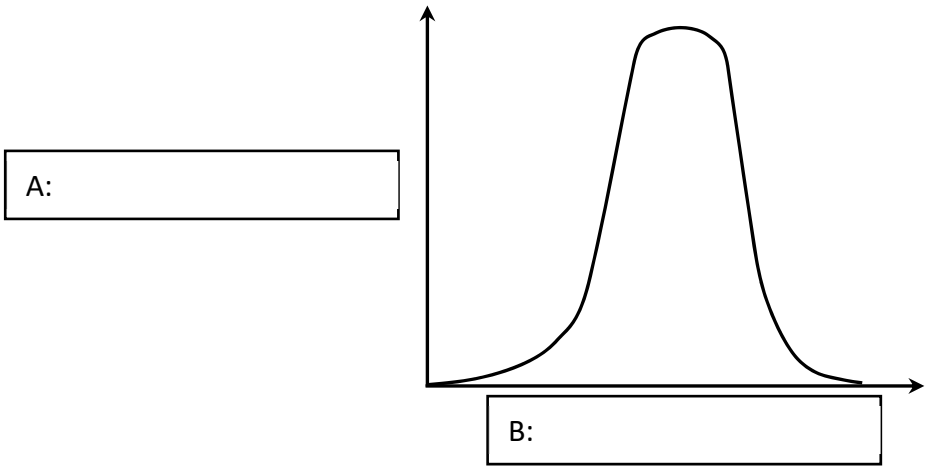
(iii) How did you vary the pH during the investigation?

(iv) What product (or products) were produced?

(v) Name **one** factor that you kept constant throughout the investigation.

(vi) How was the factor named in part (b) (v) above kept constant?

(vii) A graph similar to the one shown below was plotted from the results of this investigation. Label both axes **A** and **B**.

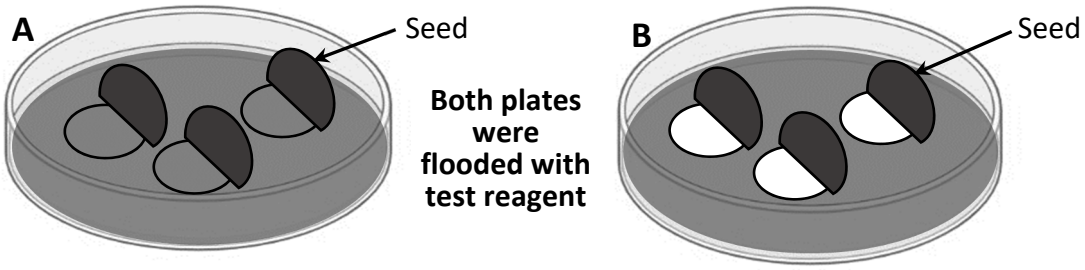


10. (a) Plant seeds remain dormant when conditions are unsuitable.

(i) Give **one** factor required for germination to occur.

(ii) Dormancy is usually followed by germination. Give **one** advantage of dormancy.

(b) The diagram shows two agar plates (containing either starch or skimmed milk) that were used to demonstrate the digestive activity of a germinating seed. Study the diagram and answer the questions that follow.



(i) Name a suitable seed you used.

Name of seed:

(ii) Plate **A** was the control. What was done to these seeds?

(iii) Write down the type of agar plate you used **and** name the test reagent you used in both plates.

Type of agar plate:
Test reagent used:

(iv) State the results shown in plate **A and** plate **B and** explain **each**.

Plate A result:
Explanation:
Plate B result:
Explanation:

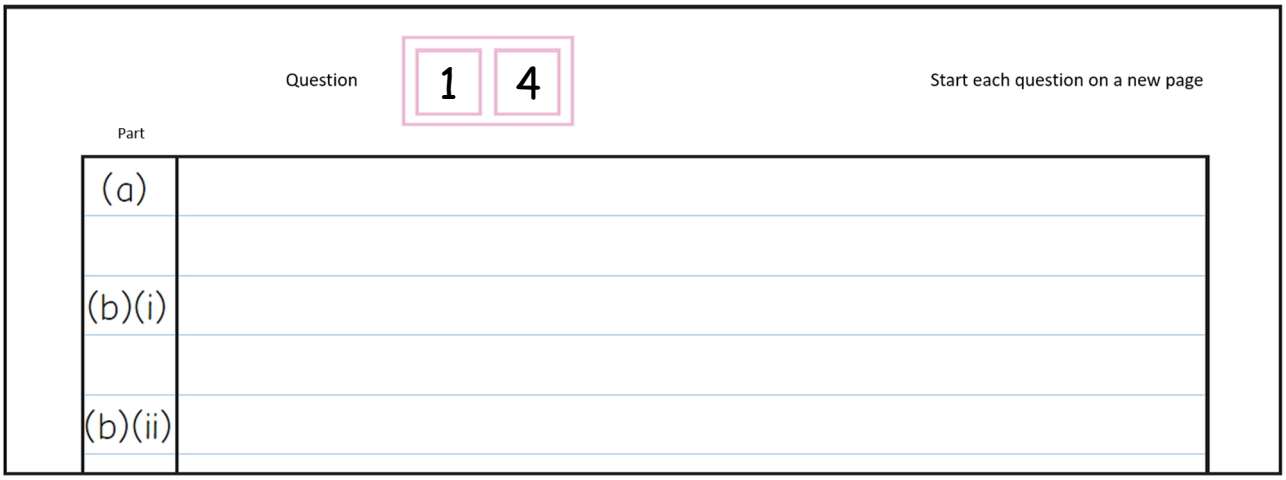
(v) State **one** safety precaution you took when conducting this activity.

Answerbook for Section C

Instructions

Questions for Section **C** are supplied separately.

Start each question on a new page. Write the question number in the box at the top of each page. Use the left-hand column to label each part, as shown below.



There are two pages of graph paper on the next two pages of this answerbook.
On pages with graph paper, the box for the question number is at the bottom of the page.

You do not need to use all of the pages in this answerbook. If you run out of space in this answerbook, you may ask the superintendent for more paper or graph paper.

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

Question

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Leaving Certificate – Ordinary Level

Biology - Sections A and B and Answerbook

3 hours