



EXAMINATION NO.: \_\_\_\_\_  
**THE MALAWI NATIONAL EXAMINATIONS BOARD**

2024 MALAWI SCHOOL CERTIFICATE OF EDUCATION EXAMINATION

# BIOLOGY

Subject Number: M022/I

Wednesday, 10 July

Time Allowed: 2 hours

8:00 – 10:00 am

## PAPER I

### Theory

(100 marks)

#### Instructions:

1. This paper contains 12 printed pages. Please check.
2. Before you begin, write your Examination Number at the top of each page of the question paper.
3. This paper has two sections, A and B. Section A has ten questions and Section B has three questions.
4. Answer all the 13 questions in the spaces provided. The maximum number of marks for each answer is indicated against each question.
5. In the table provided on this page, tick against the question number you have answered.
6. At the end of the examination, hand in your paper to the invigilator when time is called to stop writing.

Question Number	Tick if answered	Do not write in these columns	
1			
2			
3			
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9			
10			
11			
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13			



**Section A (70 marks)**

Answer all the questions in this section in the spaces provided.

1. a. Mention any **one** excretory organ responsible for the removal of nitrogenous wastes in the human body.

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**(1 mark)**

- b. Mention any **two** practices that enhance proper functioning of the kidney.

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**(2 marks)**

- c. State any **two** examples of discontinuous variations in human beings.

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**(2 marks)**

- d. Describe any **one** adaptation of a leaf for photosynthesis.

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**(2 marks)**

2. a. Mention any two characteristics of reptiles.

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(2 marks)

- b. Figure 1 is a diagram showing a plant response to a stimulus.

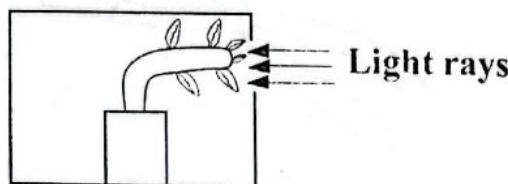


Figure 1

- (i) What type of response is illustrated in Figure 1?

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(1 mark)

- (ii) Explain one way in which the response shown in the figure is important.

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(2 marks)

- (iii) Describe the mechanism of the response shown in the figure.

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(4 marks)

3. a. Mention any two impacts of climate change on an ecosystem.

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(2 marks)

- b. Figure 2 is a diagram showing the structure of a chromosome.

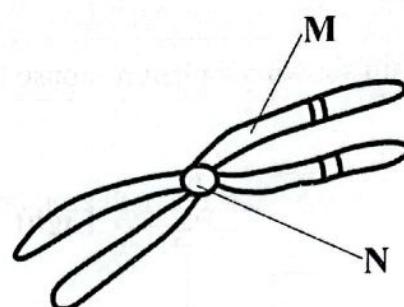


Figure 2

- (i) Name the part labelled M.

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(1 mark)

- (ii) State the function of the part labelled N.

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(1 mark)

- (iii) At what stage of mitosis is the structure of the chromosome being observed?

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(1 mark)

- c. Explain any one application of genetic engineering.

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(2 marks)



4. Figure 3 is a diagram showing a human foetus in a womb.

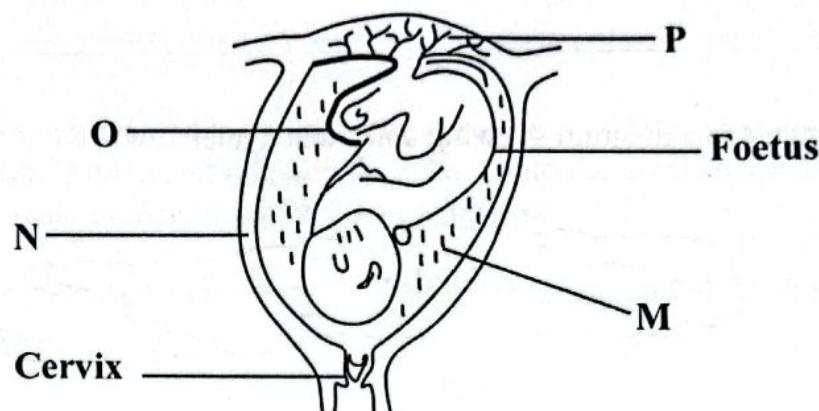


Figure 3

- a. Name the parts labelled N and O.

N: \_\_\_\_\_ (1 mark)

O: \_\_\_\_\_ (1 mark)

- b. State any **two** functions of the part labelled M.

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(2 marks)

- c. Explain any **one** adaptation of part labelled P for its function.

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(2 marks)

- d. Describe the role of part labelled N during birth.

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(2 marks)

5. a. State the two effects of auxins on plant growth.

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(2 marks)

- b. Figure 4 is a diagram showing a nutrient cycle.

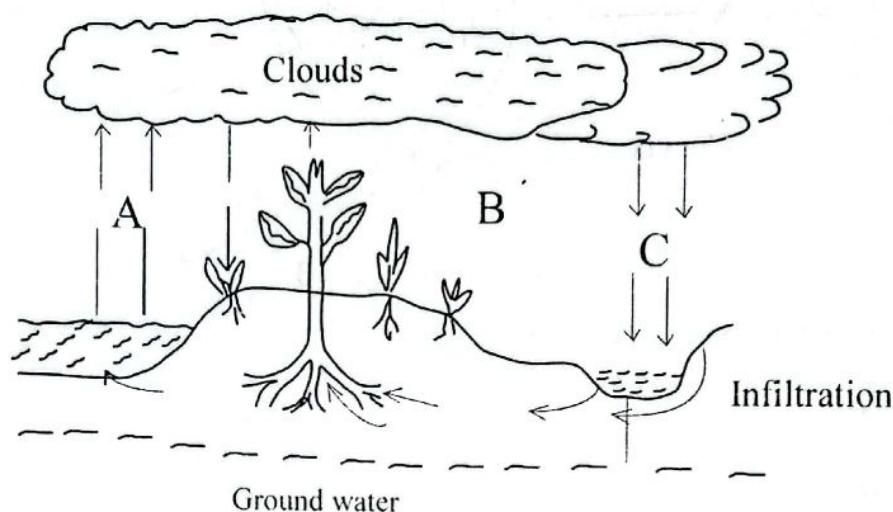


Figure 4

- (i) Name the processes labeled A and C.

A: \_\_\_\_\_ (1 mark)

C: \_\_\_\_\_ (1 mark)

- (ii) Explain any one way in which process labelled B is important to the ecosystem.

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(2 marks)



Continued/...

6. a. State any two components of the lymphatic system.

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(2 marks)

- b. A fish farmer wanted to estimate the population of fish in a pond, she caught 120 fish, marked them and released them back into the pond. After 24 hours, she caught again 80 fish of which 20 were marked;

- (i) Name the method used by the farmer to estimate the fish population in the pond.

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(1 mark)

- (ii) Why did the farmer wait for 24 hours before catching the 80 fish?

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(1 mark)

- (iii) Calculate the estimated population of the fish in the pond.

(3 marks)



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7. a. Mention any two viral diseases which could be controlled by vaccines.

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(2 marks)

- b. Figure 5 is a diagram showing a plant.

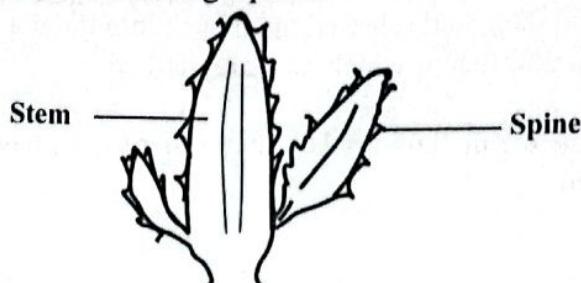


Figure 5

- (i) Name the group to which the plant belongs according to its habitat.

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(1 mark)

- (ii) State **two** functions of the spines.

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(2 marks)

- (iii) Explain **one** way in which the absence of leaves in the plant is important.

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(2 marks)

8. a. State any **two** factors to be considered before organ transplanting.

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(2 marks)

- b. Describe **one** role of any **two** sex hormones in the menstrual cycle.

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(4 marks)



Continued/...

9. a. State any two effects of cancerous cells.

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(2 marks)

- b. Describe the down stroke movement in birds.

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(5 marks)

10. a. Mention any two diseases of the kidney.

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(2 marks)

- b. Figure 6 is a diagram showing an experimental set up to investigate the action of protease on egg white.

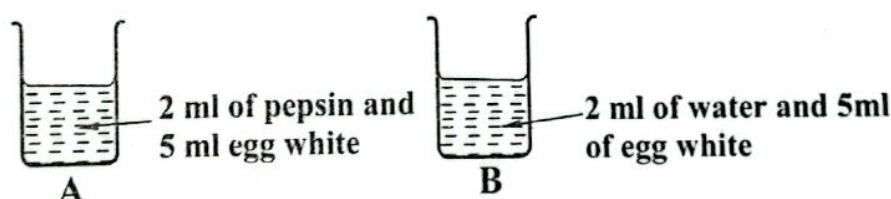


Figure 6

- (i) Describe the results of the experiment.

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(2 marks)

- (ii) Give a reason for the answer in b (i).

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(2 marks)



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**Section B (30 marks)**

**Answer all the three questions in this section in the spaces provided under each question.  
Your answers should be in an essay form.**

11. Describe any five factors that influence breathing rate in human beings.

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(10 marks)



Continued/...

12. A couple would like to stay without a child for three years. Describe any five methods they could use to prevent pregnancy.

**(10 marks)**



### **Continued/...**

13. Describe any five abnormal conditions of the nervous system.

**(10 marks)**



**END OF QUESTION PAPER**