

CANDIDATE NAME _____

KARONGA MULTI-CAREER ACADEMY

2024 MALAWI SCHOOL CERTIFICATE OF EDUCATION MOCK EXAMINATION

BIOLOGY

PAPER I (100 marks)

Time Allowed: 2 hours

Instructions

1. This paper contains 11 printed pages. Please check.
2. Write your name on top of all pages.
3. This paper contains sections; A and B.
4. Answer all questions in the spaces provided.
5. In the table provided on this page, tick against the question number you have answered.

Question number	Tick if answered	Do not write in these columns	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

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SECTION: A (70 marks)

1. a. Which human hormone affects water reabsorption by the kidney tubules?

_____ (1 mark)

- b. Give any two accessory glands in a male reproductive system.

_____ (2 marks)

- c. Write down two advantages of exclusive breast feeding.

_____ (2 marks)

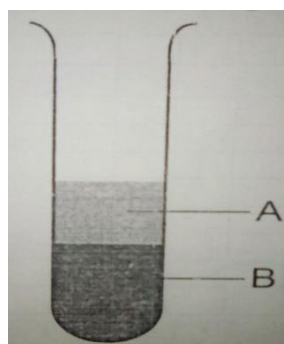
- d. Vasectomy is a surgical operation in which the sperm duct is cut on both sides of the body and the cut ends are tied and sealed. Explain how this will result in efficient contraception.

_____ (1 mark)

- e. Explain any two adaptations of the placenta to its functions.

_____ (4 marks)

2. Figure 1 represents a test tube containing blood which was left to stand overnight.



- a. Name the part of blood labelled A.

_____ (1 mark)

- b. Name any two structures you would find in part labelled B.

_____ (2 marks)

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- c. What anticoagulant could have been added to the blood to prevent it from clotting?

_____ (1 mark)

- d. Describe how you would use the contents of the test tube in figure 1 above to demonstrate that blood contains glucose

_____ (3 marks)

- e. Explain the two types of cancer.

_____ (4 marks)

- f. Mention any two effects of cancerous cells in the body.

_____ (2 marks)

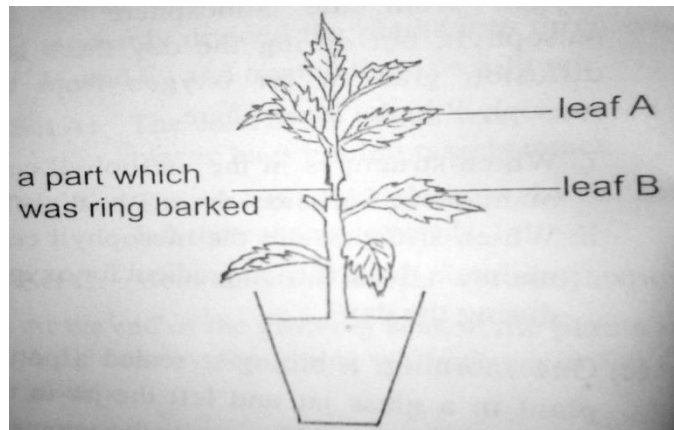
- g. Fill the table below by relating the following diseases; common cold, ring worm and cholera according to their given causative agents.

Viral diseases	Fungal diseases	Bacteria diseases

(3 marks)

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3. Figure 2 is a diagram illustrating a potted plant which was ring-barked.



- a. Suppose the plant was kept in the dark for 24 hours after which leaf A was tested for starch. What would be the expected result? Explain your answer.

_____ (2 marks)

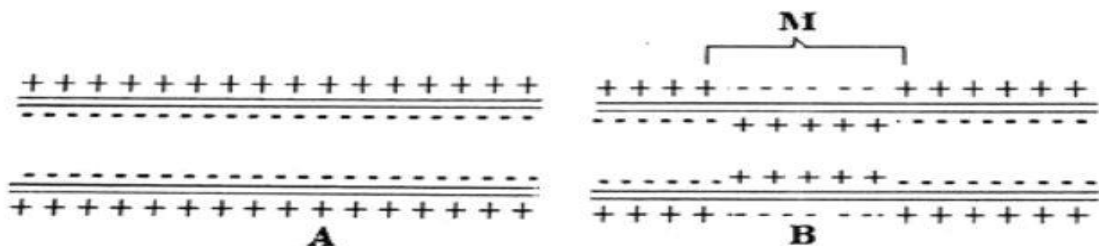
- b. The plant in 4(a) was kept in the sun for 8 hours after which leaf B was tested for starch. What would be the expected result? Explain your answer.

_____ (2 marks)

- c. Explain any one adaptation of a leaf for photosynthesis.

_____ (2 marks)

4. Figure 3 is a diagram showing a process occurring in the human body.



- a. Identify the process shown in the figure.

_____ (1 mark)

- b. Mention the special cells responsible for the process above in the human body.

_____ (1 mark)

- c. Name the part of the process labelled M.

_____ (1 mark)

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d. State the mineral element used in the body to allow the process labelled M.
_____ (1 mark)

e. Which of the diagrams A and B is polarized?
_____ (1 mark)

5. a. Define the term ‘‘Enviromental stress’’

_____ (1 mark)

b. Give any one example of environmental stresses that affect ecosystem.

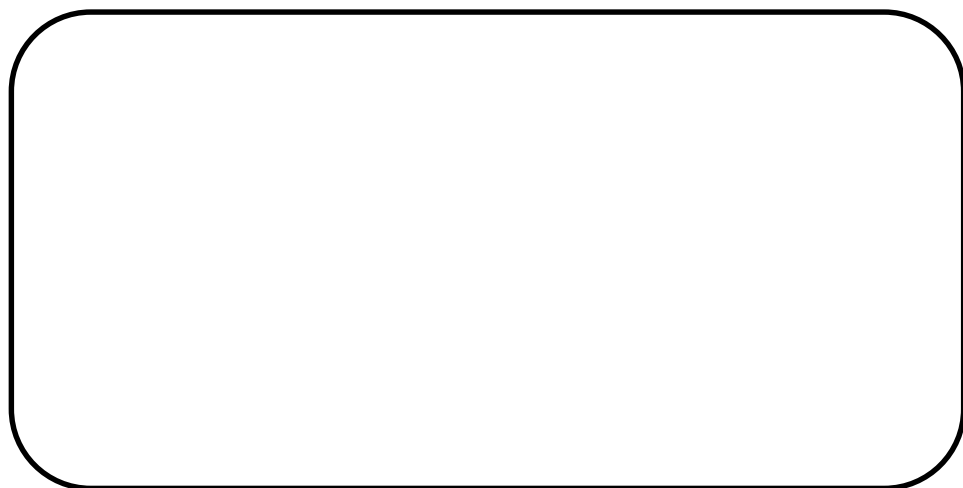
_____ (1 marks)

c. Explain any one impact of human activities on aquatic and terrestrial ecosystems.

_____ (2 marks)

d. In an ecosystem, a student split a log of dead wood and she found many termites feeding on it. Soon after she had left, birds came to pick the termites. Use this information to answer the questions that follow.

i. Draw a well labelled pyramid of numbers to represent this information.



(3 marks)

ii. Why does the pyramid above have such a shape?

_____ (1 mark)

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6. a . Explain how the following factors influence breathing rate.

i. Haemoglobin concentration

_____ (1 mark)

ii. Emotional changes in the body

_____ (1 mark)

b. . Explain any one characteristic of respiratory surfaces for gaseous exchange

_____ (2 marks)

c. Briefly explain how anaerobic respiration occurs in animals.

_____ (2 marks)

7. Figure 4 is the diagram showing positions of endocrine glands in humans. Use it to answer the questions that follow.



a. Name the glands labelled

Z_____ (1 mark)

W_____ (1 mark)

b. Explain any one way in which gland labelled Y regulates blood sugar level.

_____ (2 marks)

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- c. State any one difference between endocrine system and nervous system.

_____ (2 marks)

- d. Explain why a liver cell may require as many as one thousand mitochondria.

_____ (2 marks)

- e. State any one benefit associated with biotechnology that can lead to food security.

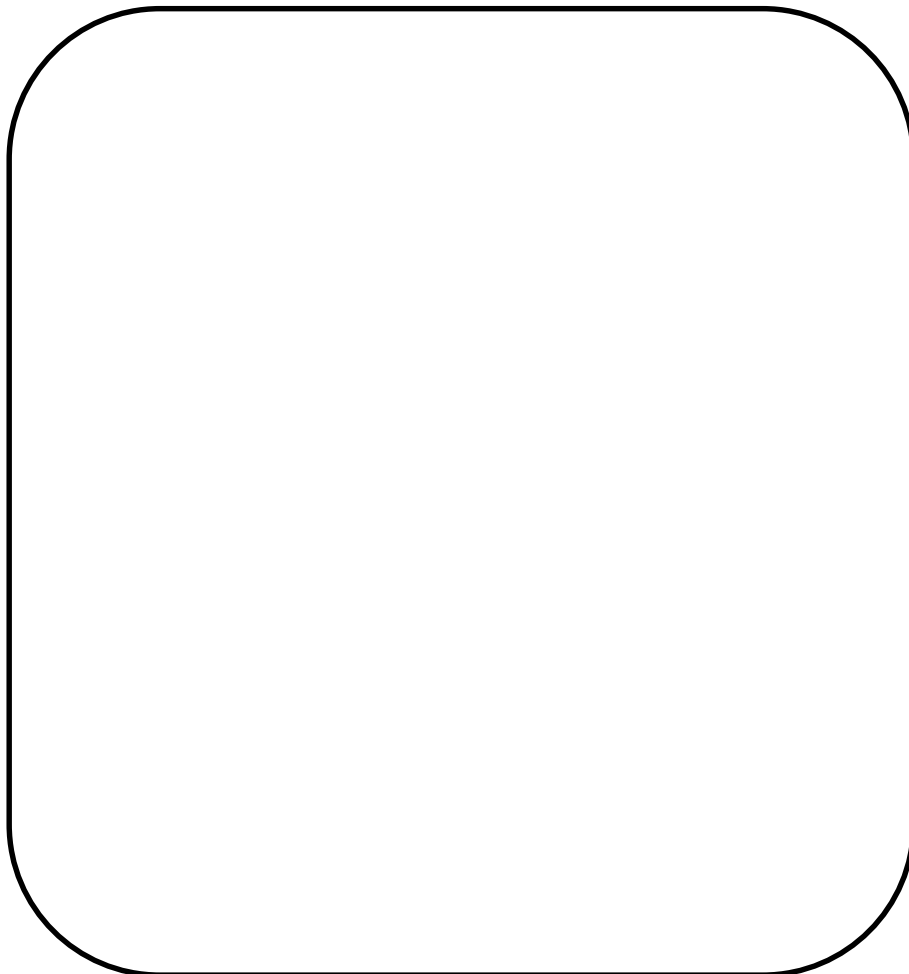
_____ (1 mark)

8. A black female dog was mated with a white male dog. Offspring produced were all black. Later the offsprings were mated and produced black and white offsprings. **Sixty-four** offsprings were produced in the ratio of **3** to **1**. Taking **G** to stand for dominant gene and **g** for recessive gene.

- a. What are the genotypes of the parents that produced **sixty-four** offsprings?

_____ (1 mark)

- b. Show this information using the genetic crosses.



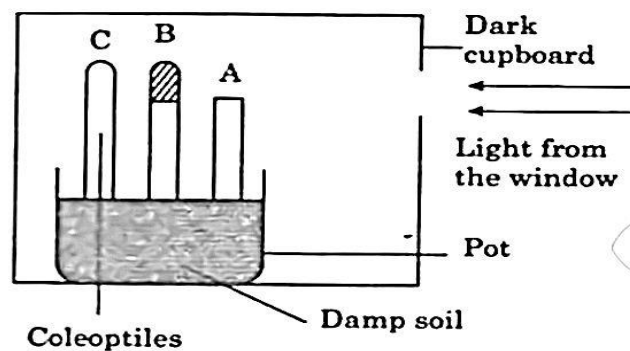
(3 marks)

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- c. Calculate number of white puppies produced.

(2 marks)

9. Figure 5 below shows an investigation carried on how auxin influences phototropisms.



- a. Draw what will happen after two days. (3 marks)

- b. Explain the effects of light on C.

(1 mark)

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SECTION C: (30 marks)

10. Explain any five ways how biotechnology can be used to improve quality of human life. Your answer should be in essay form.

[illegible]

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12. Explain five adaptations of red blood cells for carrying oxygen to all body tissues.

[illegible]

END OF QUESTION PAPER