

# MANGU HIGH SCHOOL

NAME: ..... ADM. NO. ....

CLASS:.....



231/2

**BIOLOGY**

Paper 2

**THEORY**

**MOCK EXAMS - 2022**

Time: 2 Hours

*Kenya Certificate of Secondary Education (K.C.S.E)*

## Instruction To Candidates

- i. This paper consists of TWO sections A and B.
- ii. Answer all questions in section A.
- iii. Answer question 6 [compulsory] and any other one question [7 or 8] in the spaces provided after question 8 from section B

## For Examiner's Use Only

Section	Question	Max. Score	Candidates Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
<b>TOTAL SCORE</b>		<b>80</b>	

*This paper consists of 11 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.*

**SECTION A (40 MARKS)**  
**Answer All questions in this section**

1.a) Explain why people with sickle-cell trait have an advantage of surviving malarial attack than those with normal red blood cells (2mks)

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b) Mr. Mwasimba accuses his wife of infidelity after the birth of a child. He is heterozygous of blood group A and his wife is heterozygous for blood group B. If the child is blood group O, is Mr. Mwasimba justified in his accusation? Show your working. (4mks)

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c) State two advantages of polyploidy in plants (2mks)

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2.A form 1 student placed a red blood cell in a solution and made an observation as follows.  
Start of experiment/ end of experiment

a) i) In what solution was the red blood cell placed? (1 mark)

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ii) Explain the observation above.

(2 marks)

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b) If the red blood cell was replaced by a plant cell what would be the observation. (2 marks)

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c) Why don't the red blood cell undergo the same changes as above while in the body. (3 marks)

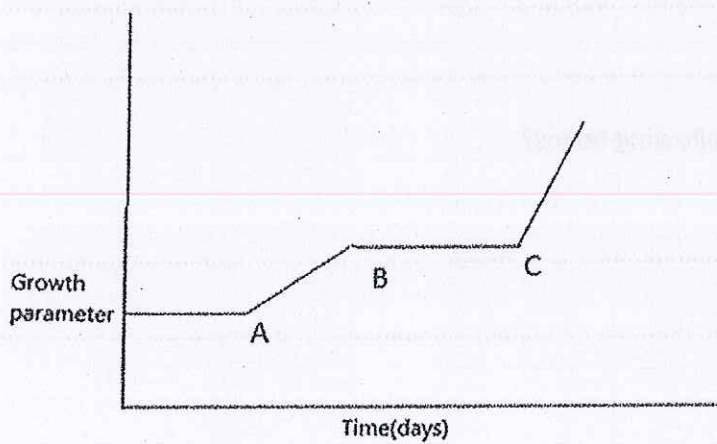
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3. The graph below shows the growth pattern of an organism.



(a) Name the type of growth curve shown above. (1mk)

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(b) Name the phylum where organisms show the above curve (1mk)

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(c) Name the hormones that influence the growth above. (2mks)

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(d) Give reasons for the shape of the graph between:

(i) A and B (2mks)

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(ii) B and C (2mks)

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4.(a) What is meant by the following terms?

(i) Adaptive radiation (1mk)

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(ii) Vestigial structures (1mk)

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b) Evolution is an ongoing process. State two pieces of evidence which suggest that evolution is still taking place. (2mks)

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c) Explain how the following factors influence natural selection.

i) Predators (2mks)

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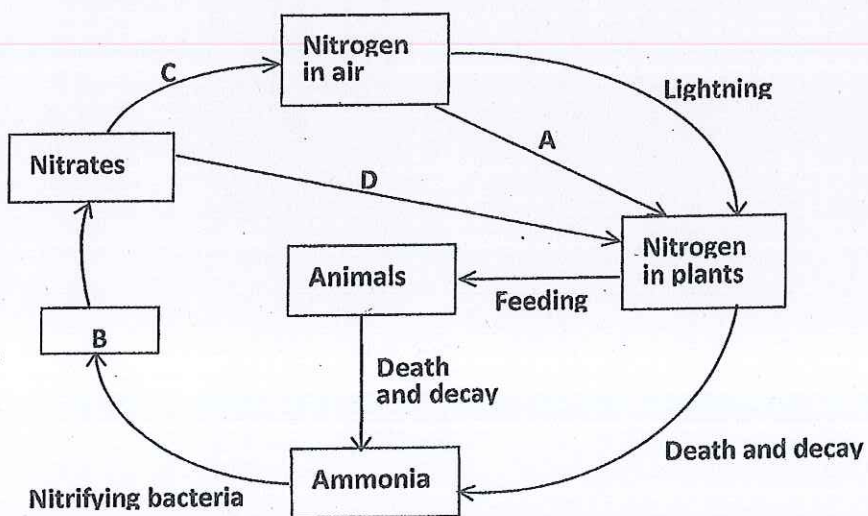
ii) Diseases (2mks)

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5. The diagram below represents the nitrogen cycle.



a. Identify the processes labelled A and D.

(2 marks)

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b. Name the compound represented by B.

(1 mark)

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c. Name the group of organisms labelled C.

(1 mark)

(i) Name the group of plants that promote process A.

(1 mark)

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(ii) In which part of the plant does process A take place?

(1 mark)

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d. How would excess pesticides in the soil interfere with process A?

(2 marks)

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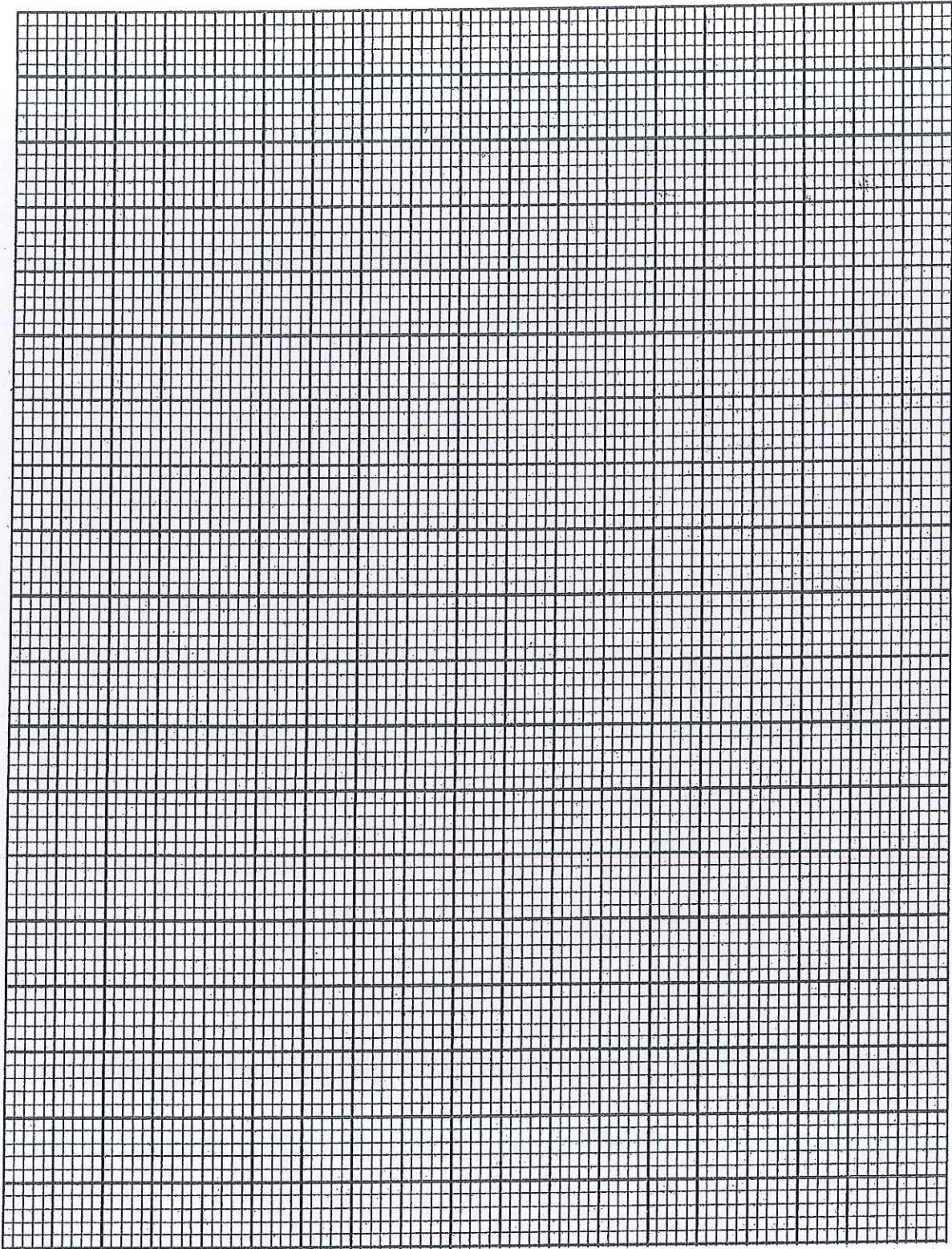
Section B

Answer question 6(compulsory) and either question 7 or 8 in the spaces provided after question 8

6. The table below shows how the quantities of urine and sweat vary with external temperature

External temperature( $^{\circ}\text{C}$ )	Urine ( $\text{cm}^3/\text{hr}$ )	Sweat ( $\text{cm}^3/\text{hr}$ )
0	100	5
5	90	6
10	80	10
15	70	20
20	60	30
25	50	60
30	40	120
35	30	200

(a) On the grid provided, plot the quantities of urine and sweat produced against external temperature  
(7 marks)





(b) At what temperature is the amount of sweat and urine produced equal? (1 mark)

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(c) What happens to the amount of sweat produced as the temperature rises? Explain your observation (3 marks)

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(d) Explain the observation made on the amount of urine produced. (3 marks)

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(e) How are the following parts of the mammalian skin adapted for temperature regulation during cold weather? (6 marks)

Hair: .....  
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Sweat glands

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Blood vessels

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