

NAME _____ INDEX NO. _____

CANDIDATE'S SIGNATURE _____

DATE: _____

231/2
BIOLOGY PAPER 2
THEORY

TIME: 2 HOURS

MOI HIGH SCHOOL - KABARAK

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

231/2

BIOLOGY PAPER 2

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided.
- In Section B answer questions 6 (Compulsory) and either question 7 or 8 in the spaces provided after question 8.
- Answer all the questions in the spaces provided.
- Candidates should answer all the questions in English.

For Examiners' use ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
	6	20	
	7	20	
	8	20	
TOTAL		80	

SECTION A (40 MARKS)

INSTRUCTIONS – Answer **ALL** the questions in this section in the spaces provided.

1. (a) State the roles of the following organelles. (3 marks)

(i) Ribosome

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(ii) Lysosome

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(iii) Centriole

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- (b) Give three differences between a plant and animal cells. (3 marks)

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- (c) Suggest two ways the sperm cell is specialized. (2 marks)

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2. (a) State three features of the gaseous exchange surface for an aquatic organism. (3 marks)

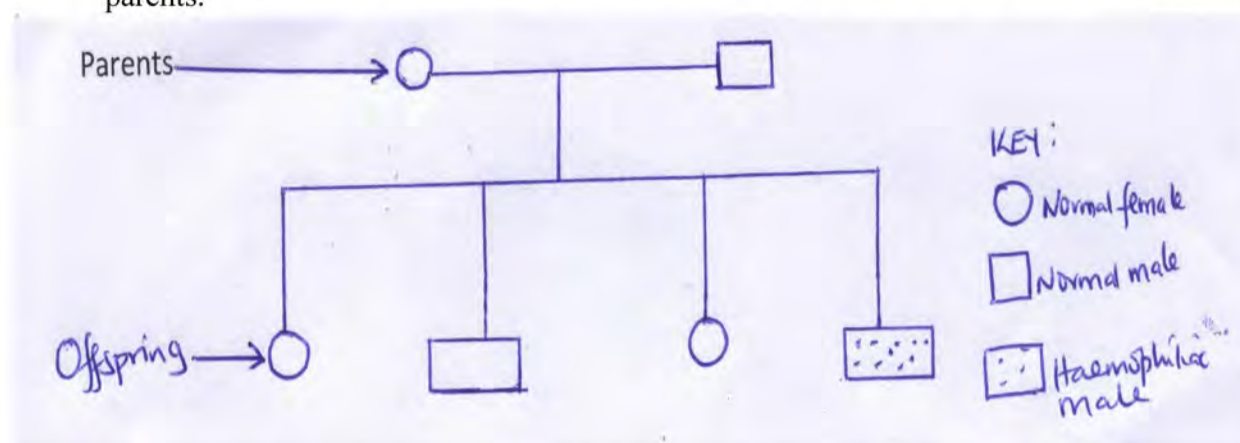
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- (b) Name the form in which the following compounds are transported in blood. (3 marks)
- (i) Oxygen
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-
- (ii) Carbon (II) oxide
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- (c) Explain oxygen debt. (2 marks)
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- (d) Suggest the advantage of transporting most carbon (IV) in red blood cells. (1 mark)
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3. (a) Give three hormones that influences the female reproduction in humans. (3 marks)
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-
- (b) State the roles of the following structure in the human male.
- (i) Prostate gland (2 marks)
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-
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- (ii) Cowper's gland (1 mark)
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- (iii) Epididymis (1 mark)
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(c) What is gestation period? (1 mark)

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4. Hemophilia is due to a recessive gene. The gene is sex-linked and located on the X-chromosome. The figure below shows some offspring from phenotypically normal parents.



- (a) (i) What are the parental genotypes?

Father _____ Mother _____ (2 marks)

- (ii) Work out the genotypes of the offspring. (4 marks)

- (b) State **two** other disorders in humans that result from gene mutation. (2 marks)

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5. (a) Define the phototropism. (1 mark)

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- (b) Name the hormone involve in phototropism. (1 mark)
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- (c) Explain how the hormone named in 5 (b) above causes phototropism in a shoot of a young seedling. (3 marks)
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- (d) (i) State the function of a klinostat. (1 mark)
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- (ii) Explain how the klinostat works to achieve its function. (2 marks)
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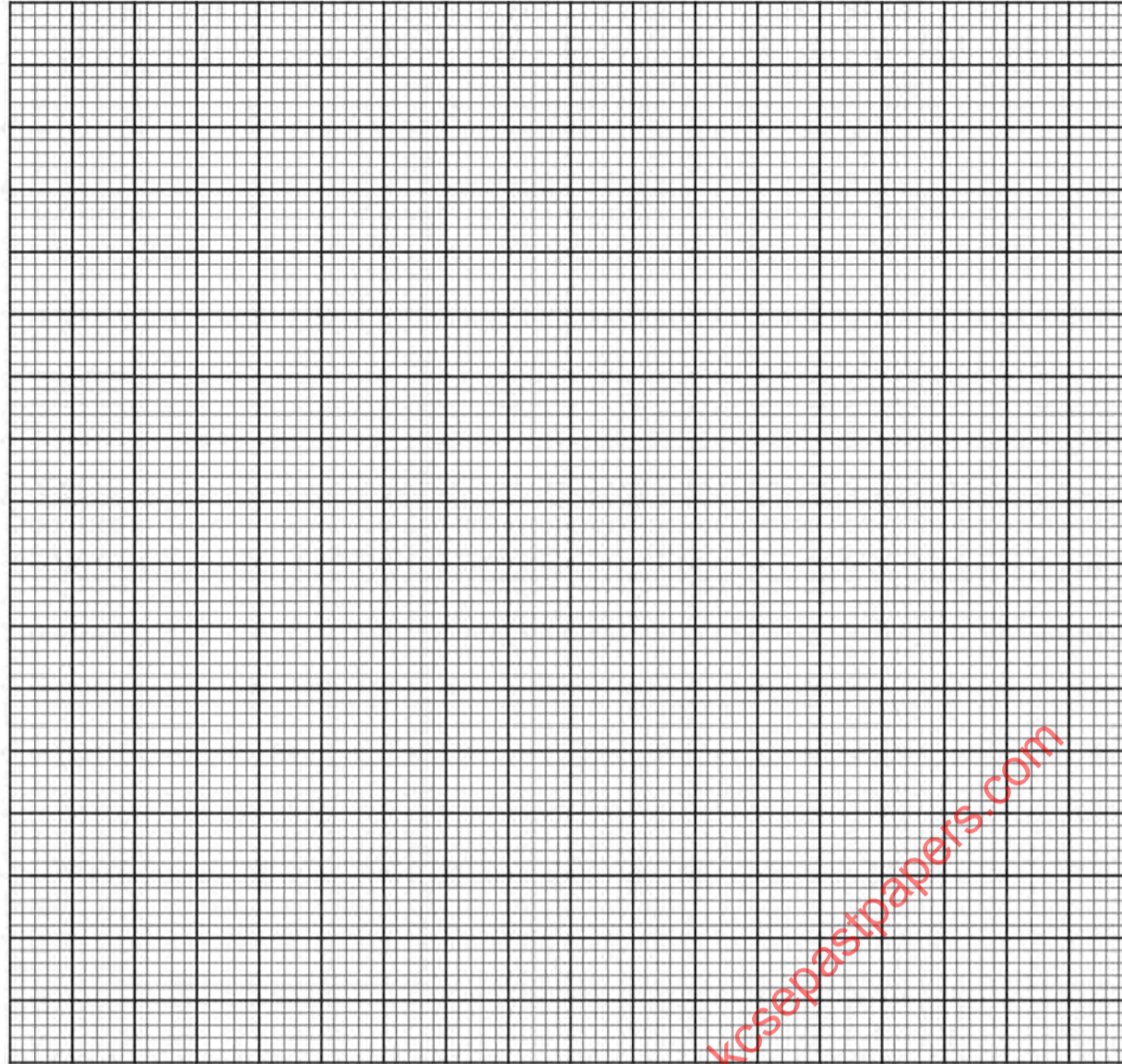
SECTION B (40 MARKS)

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

6. The data provided below represent populations of a predator and its prey over a fifty years period.

TIME IN YEARS	POPULATION IN RELATIVE NUMBERS	
	POPULATION OF P	POPULATION OF Q
5	24500	17000
10	30000	20500
15	33500	26000
20	33500	30000
25	31000	33000
30	27000	32000
35	25000	30000
40	29000	27500
45	32500	28000
50	34000	28500

- (a) (i) Using the same axes, draw graphs of the relative populations of **P** and **Q** against time. (7 marks)



- (ii) With a reason, identify the curve that represents the prey. (2 marks)

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- (iii) Account for the two populations between 25 and 32 years. (2 marks)

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(iv) Which years were the two populations equal? (2 marks)

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(v) Apart from predation, state **three** biotic factors that may have led to the decline of the prey population. (3 marks)

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(b) Describe the hazards of air pollution by Sulphur(IV)Oxide. (4 marks)

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7. (a) Explain how water move up the plant from the xylem in roots to the leaves.

(8 marks)

(b) Describe the process of digestion of a meal consisting of lean meat and rice.

(12 marks)

OR

8. Describe the process of urine formation in man. (20 marks)

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