

NAME:.....

INDEX NO:.....

SCHOOL:.....

DATE:.....

SIGN:.....

231/2

BIOLOGY

PAPER 2

(THEORY)

JULY/AUGUST - 2012

TIME: 2 HOURS

BORABU-MASABA DISTRICTS JOINT EVALUATION TEST– 2012

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided above.
2. Sign and write the date of examination in the spaces provided above.
3. This paper consists of **Two** sections **A** and **B**.
4. Answer **ALL** the questions in section **A** in the spaces provided.
5. In section **B** answer question **6** (compulsory) and either 7 or 8 in the spaces provided.

FOR EXAMINERS USE ONLY.

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

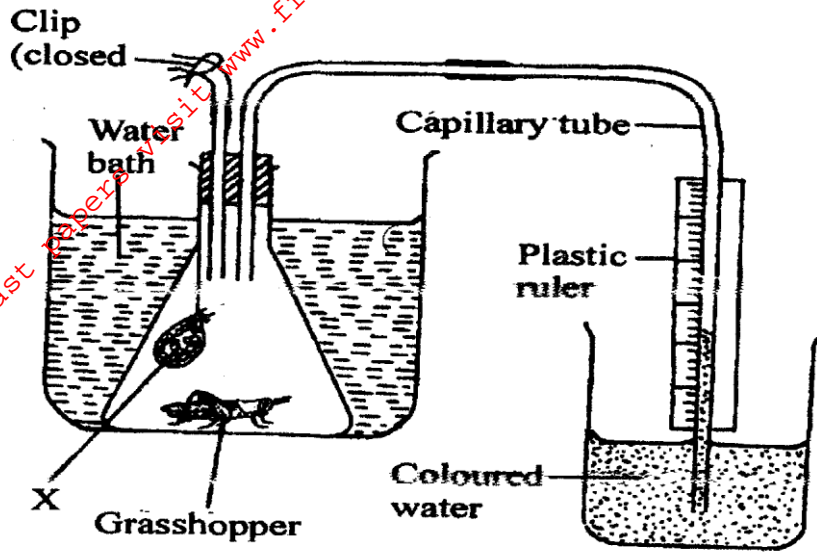
This paper consists of 8 printed pages.

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

SECTION A(40 MARKS)

Answer ALL questions in this section in the spaces provided.

1. The diagram below illustrates an experiment to determine the rate of respiration in a small insect.



- a) Name the chemical compound labelled X and state its function. (2mks)

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- b) Why is it necessary to place the flask in a water bath. (3mks)

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- c) What changes would you expect to observe in the level of coloured water in the capillary tube after the experiment has run for five minutes. (1mk)

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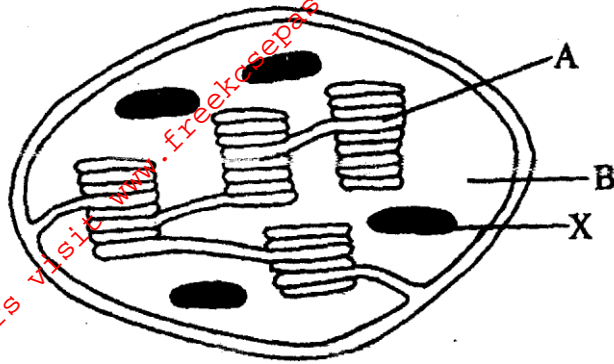
- d) Explain the changes you have started in (c) above. (3mks)

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- e) State how you can set up a control experiment . (1mk)

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2. The diagram below represents a plant cell organelle



a) Name the organelle. (1mk)

b) In which of the labelled parts does carbon (IV) Oxide fixation occur? (1mk)

c) Name the parts labelled A and B and state how each is adapted to its functions. (4mks)

A.....

B.....

d) Explain what would have happened to the structures labelled X had the plant been kept in darkness for 48 hours. (2mks)

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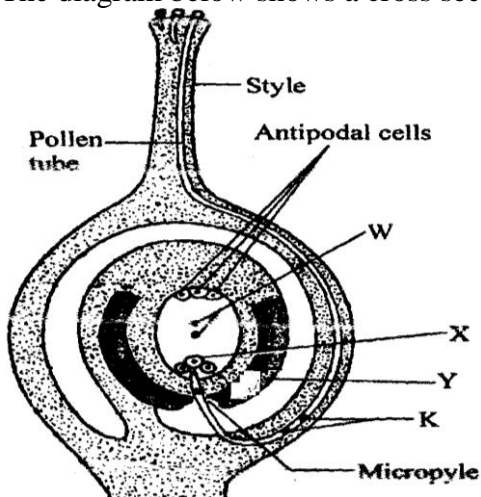
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3. The diagram below shows a cross section through the female part of a flower.



a) Name the structures labelled W, X, and Y. (3mks)

X

Y

Z

b) State two functions of the pollen tube. (2mks)

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c) What happens to antipodal cells after fertilization. (1mk)

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d) Name the structure labelled K and state their role. (2mks)

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4. a) Name any three defects of the circulatory system in humans. (3mks)

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b) How are leucocytes adapted to their function. (2mks)

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c) Name the blood vessel with the highest ionic extraction of

i) Glucose (1mk)

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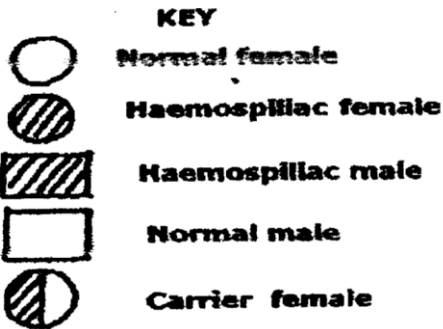
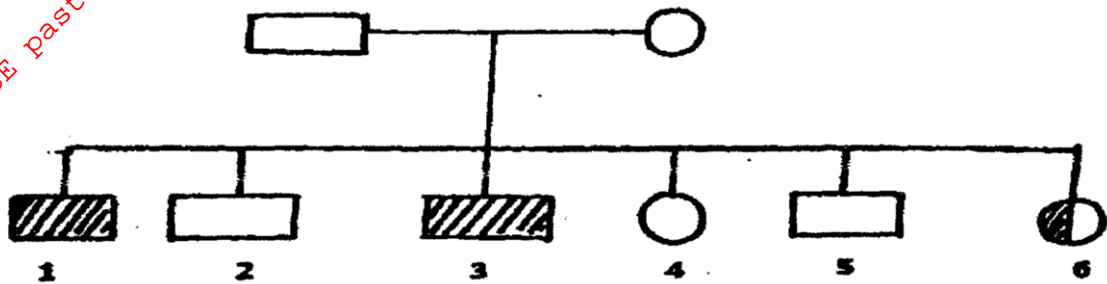
ii) Carbon (IV) Oxide.

(1mk)

d) What is the importance of tissue fluid.

(1mk)

5. Below is a pedigree chart showing the incidences of colour blindness trait linked to the X – chromosome transmitted through a recessive gene. Study the diagram and answer the following questions.



a) Gives the genotypes of person 1 and 2

1

2

b) Explain why there are no male carriers for this condition.

(1mk)

6. Explain why there are more colour blind male than female in a population.

(3mks)

SECTION B(40 MARKS)

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

7. The glucose level in mg per 100cm³ of blood was determined in two person Y and Z. Both had stayed for six hours without taking food. They were fed on equal amount of glucose at the start of the experiment .The amount of glucose in their blood was determined at intervals .The results are shown in the table below.

Times in minutes	Glucose level in blood in mg /100cm ³	
	Y	Z
0	85	78
20	105	110
30	105	110
45	130	170
60	100	195
80	93	190
100	90	140
120	90	130
140	88	120

a) On the grid provided, plot graphs of glucose levels in blood against time on the same axes.

(7mks)

b) What was the concentration of glucose in the blood of Y and Z at the 50th minute? (2mks)

Y

Z

c) Account for the level of glucose in present Y

i) During the first 45 minutes. (2mks)

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ii) After 45th minute to the end. (4mks)

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d) Account for the decrease in glucose level person Z after 60 minutes. (2mks)

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e) Low blood sugar level is harmful to the body. Explain. (3mks)

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7. a) What assumptions are made when using the captured-recapture method in estimating population of animals. (5mks)

b) Describe how you would use the capture – recapture method to estimate the population of fish in the school pond. (15mks)

8. Describe the structure and function of the various parts of the mammalian brain. (20mks)

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