Name: …… **Index no** ……..…..

School: ……..…. **Candidate's sign** ……..

Date: ……

231/2
BIOLOGY
PAPER 2
JULY/AUGUST 2011
TIME: 2 HOURS

MUMIAS DISTRICT JOINT EVALUATION EXAM

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

Biology
Paper 2

INSTRUCTIONS TO CANDIDATES:

- *Write **your name** and **index number** in the spaces provided.*
- *Answer **all** the questions in Section **A** in the spaces provided.*
- *In section **B** answer questions **6** (compulsory) and either question **7** or **8** in the spaces provided question 8*

For Examiner's Use Only:

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1	8	
	2	7	
	3	9	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	TOTAL	**80**	

This paper consists of 8 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing

SECTION A

1. In an Experiment, Drosophila (fruit flies) with long wings were crossed with those having vestigial (short) wings.

All the offspring (F1generation) had long wings.

Using letter N to denote the gene for wing size:-

(a) Give the genotypes of the parents. (2mks)

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(b) Work out the phenotypic ratio of the F_2 generation if the F_1 generation was selfed. (5mks)

(c) The gene for eye colour in Drosophila is located on the x-chromosome. What name is given to such genes? (1mk)

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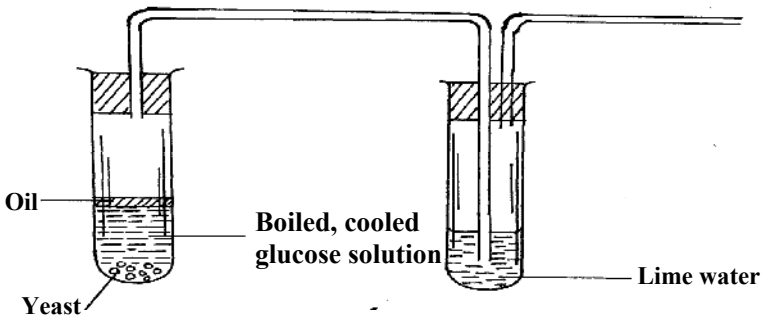
2. A class set up the experiment below to investigate a certain biological process.



(a) Name the process under investigation. (1mk)

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(b) Why was the glucose solution boiled and then coiled before the yeast was added? (2mks)

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(c) (i) What is the role of yeast in the experiment? (2mks)

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(ii) Name **two** products in the experiment. (2mks)

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3. A group of students was investigating the number of crayfish in a shallow pond using the capture-recapture method. They caught 50 crayfish, marked them with a dab of white paint on the cephathorax, and then released then back into the same pond. After three days they collected another 50 crayfish from the pond, and of these 3 bore the white paint mark.

(a)Using this data, calculate the population of the crayfish in this pond. (3mks)

(b) State any **two** assumptions that were made in this method of estimating crayfish population in the pond. (2mks)

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(c) Suggest another method that could have been used to determine the population size of the crayfish. (1mk)

(d) Define the term eutrophication. (3mks)

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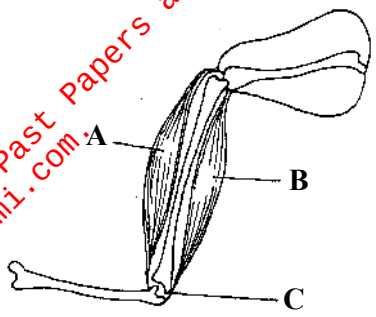
4. Study the diagram below; and answer the following questions.



(a) Name the muscles labeled **A** and **B**. (2mks)

A……..

B……

(b) What happens to each muscle as the arm is straightened? (2mks)

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(c) Name the joint at **C**. (1mk)

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(d) (i) Some herbaceous stems have very little strengthening tissue yet still remain upright. Explain (2mks)

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(ii) Name the strengthening material in scherenchyma tissue. (1mk)

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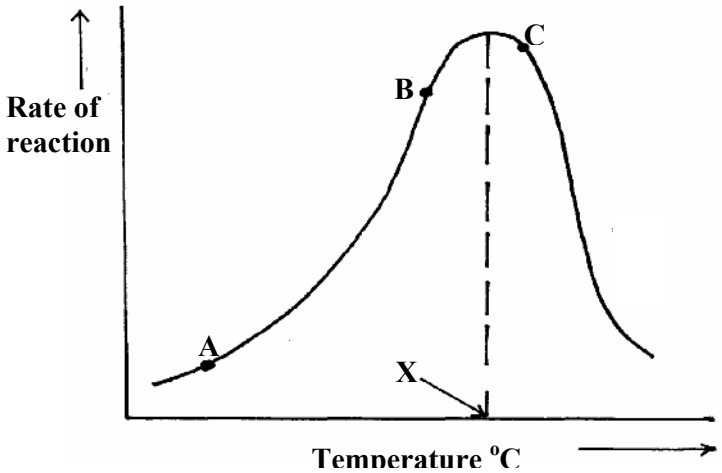
5. The figure below shows the effect of temperature on an enzyme- catalyzed reaction.



(a)Account for the shape of the graph:

(i) Between points **A** and **B**. (2mks)

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(ii) Beyond **C** (2mks)

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(b) What is point **X**? (1mk)

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(c) Name **two** other factors that affect an enzyme-catalyzed reaction. (2mks)

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(d) State the enzyme found in living tissues that breaks down hydrogen peroxide. (1mk)

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SECTION B

Answer questions 6 and either question 7 or 8 in the spaces provided after question 8.

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

External temperature	0	5	10	15	20	25	30	35
Urine cm^3/h	100	90	80	70	60	50	40	30
Sweat cm^3/h	5	6	10	15	30	60	120	200

(a) Using the same axes, draw graphs of quantities of urine and sweat produced against the external temperature. (7mks)

(b) At what temperature are the amounts of sweat and urine produced equal? (1mk)

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(c) Account for the amount of sweat produced as the temperature rises. (3mks)

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(d) Explain the observation made on the amount of urine produced as the temperature rises. (4mks)

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(e) Explain how the following help in temperature regulation when its cold:

(i) Hair (3mks)

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(ii) Blood vessels (3mks)

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7. How is the ear adapted to its function? (20mks)

8. Discuss the various phases of growth. (20mks)

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