Name ..... **Index Number** ..... / .....

Candidate's Signature .....

Date .....

231/2
BIOLOGY
PAPER 2 (THEORY)
JULY/ AUGUST 2013
TIME: 2HOURS

LENOCET EVALUATION TEST
KENYA CERTIFICATE OF SECONDARY EDUCATION

231/2
BIOLOGY
PAPER 2

Instructions to candidates

(a) Write your Name and Index Number in the spaces provided above .
(b) This paper consist of two sections. Section A and section B. Answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

For Examiner's use only

Section	Question	Maximum Score	Candidate's Score
A	1	08	
	2	08	
	3	08	
	4	08	
	5	08	
B	6	20	
	7	20	
	8	20	

SECTION A (40MARKS)

Answer all the questions in this section in the spaces provided

1. The equation below shows a chemical reaction that takes place in green plants under certain conditions.

Carbon (iv) oxide + Water $\longrightarrow$ Glucose + X

(a) (i) What is the name of substance X? (1mark)

_____

(ii) Other than reagents, state two conditions necessary for this reaction (2 marks)

_____

_____

(iii) Name two types of cells in which this process occurs. (2marks)

_____

_____

(iv) Name the process represented by the equation above. (1mark)

_____

(b) Name the features that increase the surface area of the small intestines. (2 marks)

_____

_____

2. (a) What is meant by the term sex-linkage? (1mark)

_____

_____

(b) Name two sex-linked traits in humans. (2marks)

_____

_____

(c) In Drosophila melanogaster, the inheritance of eye colour is sex-linked. The gene of red eye is dominant. A cross was made between a homozygous red-eyed female and a white eyed male. Work out the phenotypic ratio of F1 generation.
(Use R to represent the gene for red eyes) (5 marks)

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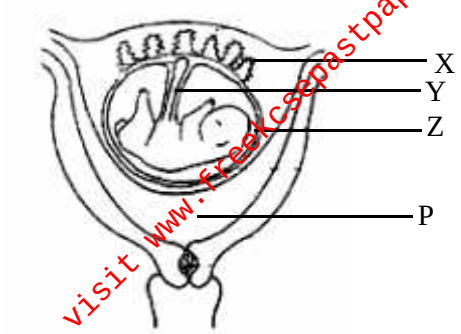
_____

3.



(a) (i) Name the structure labelled P and give its role. (2marks)

_____

_____

_____

(ii) Give three features that enables structure labelled X carry out its functions. (3marks)

_____

_____

_____

(iii) Name types of blood vessels found in the structure labelled Y. (2marks)

_____

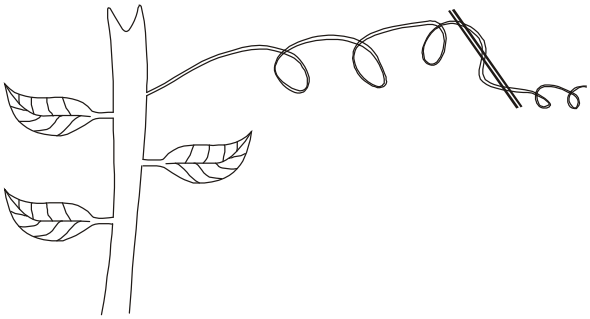
_____

(b) State the mode of asexual reproduction in yeast. (1mark)

_____

_____

4. A response exhibited by a certain plant tendril is illustrated below.



(a) (i) Name the type of response. (1mark)

_____

(ii) Explain how the response named in (a) (i) above occurs. (3marks)

_____

_____

_____

_____

_____

_____

(b) What is the importance of tactic responses to microscopic plants? (1mark)

_____

_____

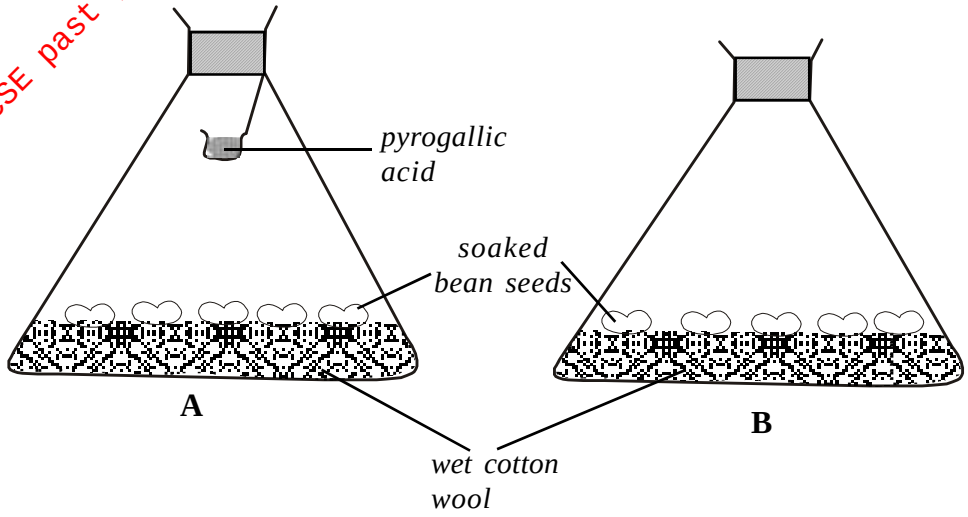
(c) State three applications of plant hormones in agriculture. (3marks)

_____

_____

_____

5. Science club members designed an experiment as shown below. Examine it.



The set up was kept at room temperature for one week.

(a) What was the aim of the experiment? (1mark)

_____

_____

(b) What observation was made after one week. (2marks)

A _____

B _____

(c) (i) Explain the role of water in seed germination. (3marks)

_____

_____

_____

_____

_____

(ii) Other than water, what two environmental factors are required for seed germination. (2marks)

_____

_____

SECTION B

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

6. The following data represents the development in dry mass of germinating seedlings within 18 weeks.

Time in weeks	0	1	2	4	6	10	13	15	16	18
Dry mass in grams	0.1	2	3.2	10	18	32	44	45	44	38

(a) Using suitable scales plot a graph of dry mass against time. (6marks)

(b) With reference to the graph, explain the changes in dry mass between;

(i) week 0 to 2 (2marks)

(ii) week 5 to 13 (2marks)

(iii) week 16 - 18 (2marks)

(c) (i) What is the significance of time zero. (1mark)

(ii) What difference will be expected from the above results if the experiment started with two seeds? Give a reason for your answer) (2marks)

(d) (i) Describe how you can carry out the experiment to obtain dry mass in the respective weeks. (4marks)

(ii) State one advantage of using dry mass instead of fresh weight in estimating growth of an organism. (4marks)

7. Describe the adaptations of the skin to its functions. (20marks)

8. (a) Define the term natural selection with reference to evolution. (2marks)

(b) Describe how natural selection brings about adaptation of species to its environment. (18marks)