

Name: Index No:

Candidate's signature.....

Date.....

Muungano KCSE Trial Exam

231/2

BIOLOGY

PAPER 2(Theory)

July 2017

2 Hours

INSTRUCTIONS TO CANDIDATES

Write your name, Index Number in the spaces provided above.

The paper consists of **two** sections **A** and **B**.

Answer **ALL** questions in section A in the spaces provided.

In Section B answer question 6 (*Compulsory*) and either question 7 or 8.

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<u>QUESTION</u>	<u>MAXIMUM SCORE</u>	<u>CANDIDATES SCORE</u>
1-5	40	
6	20	
7 or 8	20	

This paper consists of 8 printed Pages

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

Turn Over

SECTION A (40Marks)*Answer ALL questions from this section.*

1. (a) **What is** meant by the term (2mks)

(i) Allele

.....

(ii) Test cross

.....

- (b) **Describe** the following chromosomal mutations:

(i) Inversion

.....

(1mk)

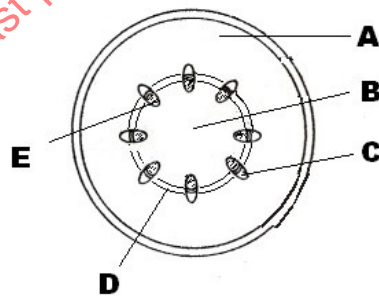
ii) Translocation

.....

(1mk)

- (c) In mice the allele for **black fur** is **dominant** to the allele for **brown fur**. **What percentage** of offspring would have brown fur from a cross between heterozygous black mice? **Show your working**. Use letter **B** to represent the allele for **black fur**. (4mks)
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-
-
-

2. The diagram below represents a transverse section of a young stem.



- (a) **Name** the parts labelled **A** and **B**. (2mks)

A

B

- (b) State the functions of the parts labelled **C**, **D** and **E**. (3mks)

C

D

E

Turn Over

- (c) **List three differences** between the section shown above and one that would be obtained from the root of the same plant. (3mks)

.....

.....

.....

3. (a) The diagram below represents a member of the kingdom Animalia.



- (i) **Name the class** to which the organism belongs. (1mk)

.....

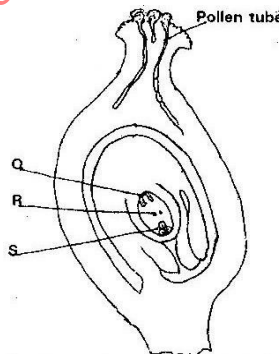
- (ii) Using observable features in the diagram, **give three reasons** for the answer in (i) above. (3mks)

.....

.....

.....

- (b) The diagram below shows a stage during fertilization in plants.



- (i) **Name the parts** labeled **Q** and **R**. (2mks)

Q

R

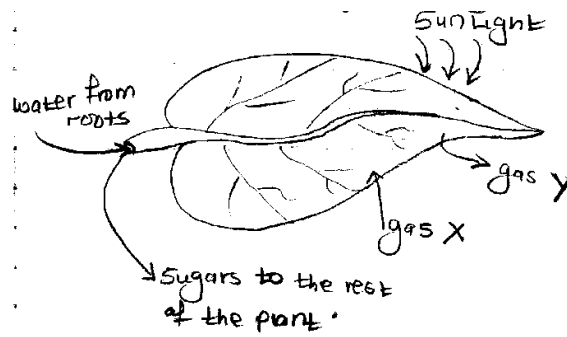
- (ii) **State the function** of the pollen tube. (1mk)

.....

- (iii) On the diagram, **label** the micropyle. (1mk)

Turn Over

4. The following diagram of a leaf shows what happens in a plant leaf during photosynthesis.



(a) **State two ways** in which leaves are adapted to absorb light. (2mks)

.....

(b) **Name** the gases labeled **X** and **Y**. (2mks)

X.....

Y.....

(c) **Name** the tissue that transports: - (2mks)

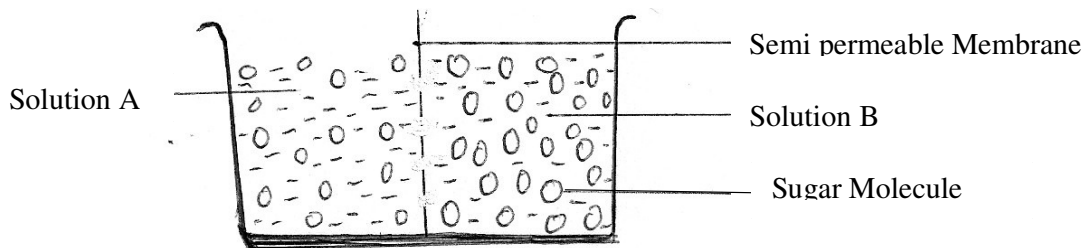
(i) Water into the leaf.....

(ii) Sugar to other parts of the plant.....

(d) **Explain why** it is an advantage for the plant to store carbohydrates as starch rather than as sugars. (2mks)

.....

5. Study the figure below and answer the questions that follow.



(a) **Which solution** has higher concentration of free water molecules? (1mk)

.....

(b) **Which** solution is more concentrated? (1mk)

.....

Turn Over

(c) ***In which direction*** will osmosis take place? ***Indicate*** on the diagram with an arrow. (1mk)

(d) ***What does*** semi-permeable membrane represent in an animal cell? (1mk)

(e) ***State three processes*** in living organisms that depend on osmosis. (3mks)

(f) ***Name any other one*** physiological process that takes place in living organisms. (1mk)

SECTION B (40Mks)

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

6. A person had stayed for 24 hours without food. Then he was served with a well-balanced meal after which the concentration of glucose and amino acids in the blood were determined every one hour for the next 8 hours after the meal, the concentration were measured as blood passed through the hepatic portal vein and hepatic vein. The results were as shown in the data below.

Time in hours	Concentration of Glucose & amino Acids in blood (Mg/100 cm ³ of blood)			
	hepatic	portal vein	hepatic	vein
	glucose	amino acids	glucose	amino acids
0	79	1.0	85	1.0
1	79	1.0	85	1.0
2	160	1.0	110	1.0
3	140	4.0	100	3.0
4	120	6.0	90	3.0
5	100	5.0	90	2.0
6	90	2.0	90	1.0
7	90	1.0	90	1.0
8	90	1.0	90	1.0

- (a) ***On the same axis plot graphs*** of glucose concentration in hepatic portal vein and hepatic vein against time. (7mks)



(b) **Account for** the difference in blood sugar level in hepatic portal vein and hepatic vein.

(i) Between 0-1 hours.

(4mks)

.....

.....

.....

.....

.....

(ii) Between 2-4 hours

(5mks)

.....

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.....

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.....

.....

Turn Over

(ii) **Account for** the difference in concentrations of amino acids in hepatic portal vein and hepatic vein between 3rd -6th hours (2mks)

(d) **Name** the enzyme that completes fat digestion in man (1mk)

7. **Describe** how seeds and fruits are adapted to different modes of dispersal. (20mks)

8. a) ***Describe the structural adaptations*** of mammalian heart to its Functions (10mks)

b) ***Explain tropic responses*** in plants and their survival values (10mks)

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