

NAME.....RANDOM NO:.....

CANDIDATE'S SIGNATURE .....

DATE: .....

231/2  
BIOLOGY  
PAPER 2  
(THEORY)  
JULY/AUGUST - 2015  
TIME: 2 HOURS

## TRANS-NZOIA COUNTY JOINT EVALUATION EXAM – 2015

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

231/2  
BIOLOGY  
PAPER 2

TIME: 2 ½ HOURS

### INSTRUCTIONS TO CANDIDATES

- Write your **name** and **random number** in the spaces provided above
- Sign and write the date of examination in the spaces provided.
- This paper consists of sections A and B answer all questions in section A
- In section B answer question 6 compulsory and either question 7 or 8 in spaces provided after question 8
- Answer all the questions in the spaces provided.

### *FOR EXAMINERS USE ONLY*

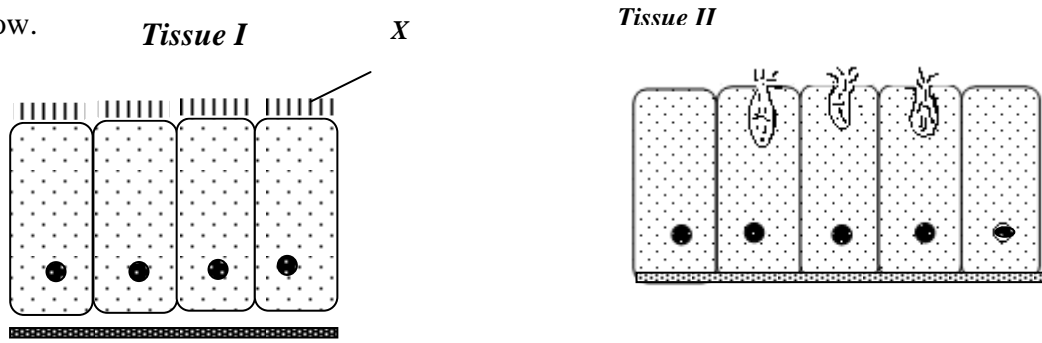
SECTION	QUESTION	Max Score	Candidate Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	<b>TOTAL</b>	<b>80</b>	

*This paper consists of 8 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing*

**SECTION A: (40 MARKS)**

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

1. The diagram below represents two animal tissues. Study the tissues and answer the questions that follow.



- a) Identify each of the tissues (2mks)

Tissue I .....

Tissue II .....

- b) (i) Name the structure labelled **X** (1 mk)

.....

- (ii) State the role played by **X** (1 mk)

.....  
 .....

- (ii) Explain how structure **X** performs their role. (1 mk)

.....  
 .....

- c) Name two body parts where each of the tissues is likely to be found. (2 mks)

.....  
 .....

- d) State one function of a microscope (1 mk)

.....  
 .....

2. In a garden with plants of the same species, 705 plants had red flowers while 224 had white flower.

- (a) Work out the ratio of red to white flowers (2 mks)

(b) (i) Using letter R to represent the dominant gene, work out the cross between F1 off- springs and white flower plant. (4 mks)

(ii) What is the phenotypic ratio from the cross in b(i) above. (1 mk)

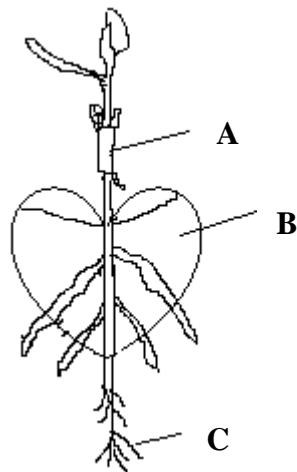
.....

(c) Define the term allele. (1 mk)

.....

.....

3. The diagram below represents a maize seedling



a) Name the structure labelled A and C. (2 mks)

A .....

C .....

b) State the function of the part labeled B. (1 mk)

.....  
.....

c) Name the type of germination exhibited by maize. (1 mk)

.....

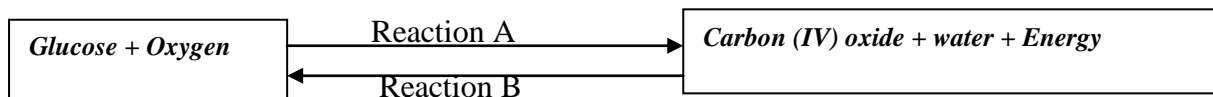
d) Name **three** conditions necessary for germination other than water and oxygen. (3 mks)

.....  
.....  
.....

e) What is the role of oxygen in germination? (1 mk)

.....

4. (a) The following summarizes two chemical reaction



(i) Name the reaction indicated by each of the arrow **A** and **B**. (2 mks)

**A** .....

**B** .....

(ii) Name the cell organelles in which each of the reaction A and B occurs. (2 mks)

.....  
.....

(b) (i) Describe the changes that occurs to the ribs, cage and diaphragm during inspiration. (3mks)

.....  
.....  
.....

(ii) State the function of the cartilaginous ring found in the walls of the trachea in a mammal. (1mk)

.....

5. (a) A potted plant was destarched by keeping it in the dark for 24 hours. Bothe surfaces of all leaves were smeared with Vaseline and the plant placed in light. After 6 hours, the leaves were tested for starch.

(i) What was the expected observation. (1 mk)

.....  
.....

(ii) Explain the observation (2 mks)

.....  
.....

(b) Name the carbohydrate that is

(i) Stored in the plant seeds (1 mk)

.....

(ii) Most abundant in mammalian human blood. (1 mk)

(iii) Stored in the human liver (1 mk)

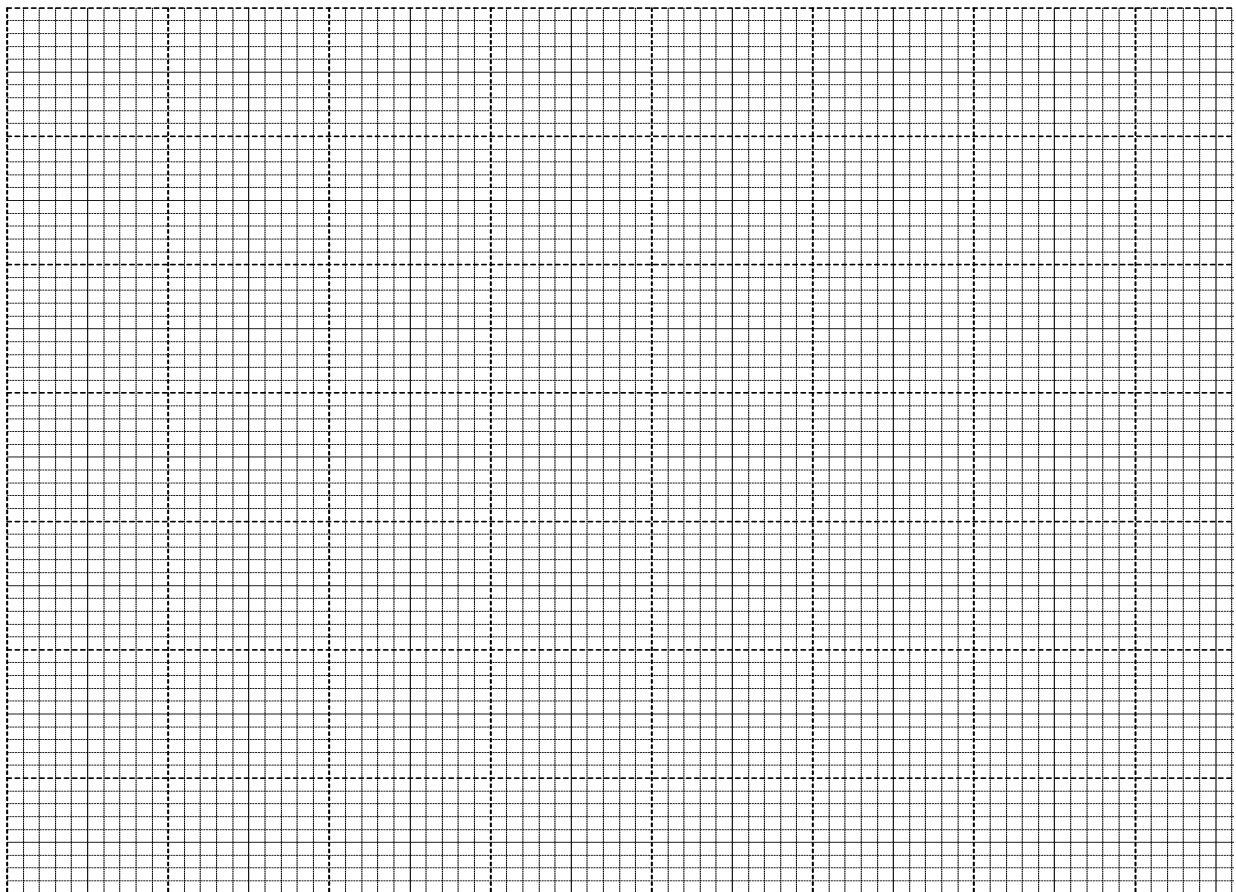
(c) (i) State **two** differences between competitive and non-competitive inhibitors. (2 mks)

**SECTION B: Answer Question 6 (compulsory) and either Question 7 or 8 in the spaces provided after question 8.**

6. In a population growth, two species of flour beetles, *Tribulum confusum* and *Tribulum casteanum* were grown in a box with unlimited supply of flour (food). The box was kept at 24°C and 30% relative humidity. The beetles were counted at certain intervals and the results tabulated as shown below.

No. of days after introduction		0	10	50	60	80	100	120	140	180	200
No. of beetles present in the box	T.confusum	20	20	300	800	1330	1440	1620	1600	1620	1600
	T. Casteanum	20	20	300	430	500	400	150	60	10	2

(a) Using the same axis, draw graphs of number of beetles in the box against time. (8 mks)



- b) How many beetles were present on the 76<sup>th</sup> day
- i) T. confusum .....(1 mk)
- ii) T. casteanum ..... (1 mk)
- c) Account for the shape of T.confusum curve between day 1 and 180. (5 mks)

.....

.....

.....

.....

.....

.....

.....

.....

- d) (i) What happens to T. casteanum between day 80 and 160. (1 mk)

.....

.....

- (ii) What biological phenomenon is represented by observation in d(i) above? (1 mk)

.....

.....

- e) State any three factors that determine dispersal of animals in the habitat. (3 mks)

.....

.....

.....

7. (a) Define:

- (i) Transpiration (2 mks)
- (ii) Translocation (2 mks)

(b) Identify and explain five structural factors that affects the rate of transpiration in plants. (16mks)

8. (a) Explain the main homeostatic function of mammalian liver. (18 mks)

(b) State any two liver diseases. (2 mks)

.....

.....

.....

.....

.....

.....

.....

.....



