

Name..... Index No.....

School..... Sign.....

Date.....

231/2  
BIOLOGY  
(THEORY)  
PAPER 2  
JULY / AUGUST – 2012  
TIME: 2 HOURS

## KISII SOUTH DISTRICT JOINT EVALUATION -2012

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

231/2  
BIOLOGY  
(THEORY)  
PAPER 2  
JULY / AUGUST – 2012  
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### INSTRUCTIONS TO CANDIDATES:-

- Write your name and index number in the spaces provided above.
- This paper consists of two sections; A and B.
- Answer all the questions in Section A in the spaces provided.
- In section B, answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

### FOR EXAMINER'S USE ONLY:-

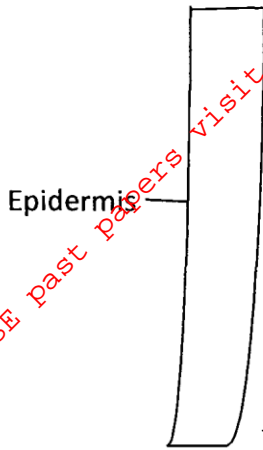
| Section      | Question     | Maximum score | Candidates score |
|--------------|--------------|---------------|------------------|
| A            | 1            | 08            |                  |
|              | 2            | 08            |                  |
|              | 3            | 08            |                  |
|              | 4            | 08            |                  |
|              | 5            | 08            |                  |
| B            | 6            | 20            |                  |
|              | 7            | 20            |                  |
|              | 8            | 20            |                  |
| <b>TOTAL</b> | <b>SCORE</b> | <b>80</b>     |                  |

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

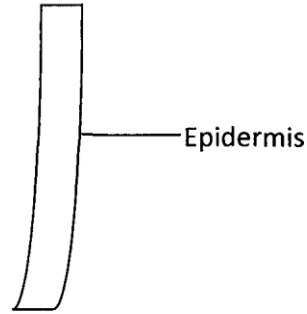
**SECTION A (40 MARKS)**

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

1. A freshly obtained dandelion stem measuring 5cm long was split lengthwise to obtain two similar pieces. The pieces were placed in solutions of different concentrations in Petri dishes for 20 minutes. The appearance after 20 minutes is as shown.



Piece in L<sub>1</sub>



Piece in L<sub>2</sub>

- (a) Account for the appearance of the pieces in solutions L<sub>1</sub> and L<sub>2</sub> (6mks)

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.....  
.....

L<sub>2</sub>

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

- (b) State the significance of biological process involved in the experiment. (2mks)

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.....  
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2. (a) Give three reasons in each case why support is necessary in (i) Plants (3mks)

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

(ii) Animals

(3mks)

.....

.....

.....

.....

.....

(b) Why is movement necessary in animals?

(2mks)

(i)

.....

.....

(ii)

.....

.....

3. In maize the gene for purple colour is dominant to the gene for white colour. A pure breeding maize plant with purple grains was crossed with a heterozygous plant.

(a)

(i) Using letter G to represent the gene for purple colour, work out the genotypic ratio of the offspring.

(5mks)

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.....

(ii) State the phenotype of the offspring.

(1mk)

.....

.....

(b) What is genetic engineering?

(1mk)

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(c) What is meant by hybrid vigour?

(1mk)

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4. (a) Distinguish between pyramid of numbers and pyramid of biomass. (2mks)

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(b) Give three reasons for loss of energy from one trophic level to another in a food chain. (3mks)

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(c) Describe how the belt transect can be used in estimating the population of a shrub in a grassland. (3mks)

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5. (a) What is meant by the terms?  
(i) Epigynous flower? (1mk)

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(ii) Staminate flower? (1mk)

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(b) Name the essential parts of a flower. (2mks)

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(c) How are the male parts of a wind pollinated flower adapted to their functions? (4mks)

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**SECTION B (40MARKS)**

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

6. In an experiment to determine the effect of ringing on the concentration of sugar in phloem, a ring of bark from the stem of a tree was cut and removed. The amount of sugar in **grams per**  $16\text{cm}^3$  piece of bark above the ring was measured over a 24hour period. Sugar was also measured in the bark of a similar stem of a tree which was not ringed. The results are shown in the table below.

| Time of the day | Amount of sugar in grams per $16\text{cm}^3$ piece of bank |             |
|-----------------|--|-------------|
|                 | Normal stem  | Ringed stem |
| 0645            | 0.78   | 0.87        |
| 0945            | 0.80   | 0.91        |
| 1245            | 0.81   | 1.01        |
| 1545            | 0.80   | 1.04        |
| 1845            | 0.77   | 1.00        |
| 2145            | 0.73   | 0.95        |
| 0045            | 0.65   | 0.88        |

- (a) Using the same axes, plot a graph of the amount of sugar against time. (6mks)

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