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## 231/1

## BIOLOGY

## PAPER 1

# NANDI NORTH DISTRICT JOINT MOCK EVALUATION TEST 2013 

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

PAPER 1
TIME: 2 HOURS

## INSTRUCTIONS TO CANDIDATES:

(a) Write your name and Index Number in the spaces provided.
(b) Sign and write the date of examination in the spaces provided.
(c) Answer ALL questions in the spaces provided.
(d) Wrong spelling especially of technical terms will be penalized.

FOR EXAMINER'S USE ONLY

| QUESTION | MAX. SCORE | CANDIDATE SCORE |
| :---: | :---: | :---: |
| $1-30$ | 80 |  |

1. Name the gaseous exchange structure ia woody stems.

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2. What is the role of vaisopressin in Osmo-regulation?
3. State three differences between members of division Bryophyta and Pteridophyta.
4. Name the structures associated with the following in human beings:
(i) Region of highest visual acuity.
(ii) Amplifications of vibrations.
5. In an experiment to observe some variations in length of leaves of Jacaranda, the following curve was obtained.

(a) Identify the type of variation illustrated by the curve.
(b) Explain the cause of the variation you have named in (a) above.
(c) Give two examples of the above variation in human beings.

6. State three roles of Gibberelfins in the growth and development of plants. (3mks)
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7. (a) If pepsigngen and trypsinogen were produced in their active forms, what would be their effect on the alimentary canal?
$\qquad$ $e^{0}$
(b) How else is the alimentary canal protected from the effects stated in (a) above? (1mk)
8. The diagram below illustrates an experiment to demonstrate the gas produced during fermentation.


After one hour the following observations were made:

- Gas bubbles appears in both tubes.
- White precipitate formed in lime water.
(a) Account for the above observations.
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(b) Explain how you can set a control for the experiment.

10. (a) Pure lines of black and white mice were crossed. All the F1 generation were grey. Explain the absence of white and black mice in the F1 generation. (1mk)
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## (b) Define multiple alleles.

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11. The diagram below represents a chloroplast.

(a) Name the parts labeled $M$ and $L$.

M: $\qquad$
L: $\qquad$
(b) List two processes that take place in the structure labeled K .
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12. Explain how geographical distribution of organism is an evidence of organic evolution.
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13. A student used $1 \mathrm{~m}^{2}$ quadrat to determine the population of striga weed in a $20 \mathrm{~m} x$ 20 m plot. He collected the data and recorded it as shown below.

| Quadrat (throws | Population of striga weed |
| :---: | :---: |
| 1 | 19 |
| 2 | 12 |
| 3 | 11 |
| 4 | 14 |
| 5 | 16 |

## Using the data above, determine the totad population of striga weed.

14. $(a)^{2}$ Why is the Afferent arteriole wider than the efferent arteriole in the kidney nephron?
(b) Explain why plasma proteins and blood cells are absent in glomerular filtrate.
(2mks)
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15. Two strips $A$ and $B$ were from a potato whose cell sap was $30 \%$ sugar. The strip $A$ was placed in a solution of $10 \%$ sugar concentration while strip B was placed in $50 \%$ sugar concentration.

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16. The diagram below represents a stage dứring cell division.

$(a)^{\varphi}$ Identify the stage of cell division.
(b) Give two reasons for your answer in (a) above.
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17. The diagram below shows the difference in growth response to varying hormone concentration by root and shoot.


What is the effect of increasing auxin concentration on:
(i) Roots
(1mk)
(ii) Shoot
18. Give two structural differences betweencsmooth muscles and skeletal muscles.

19. (a) Name the structure on the bodies of Arthropods responsible for intermitted growth çerve pattern.
(b) Name the region in plants where the following take place:
(i) Primary growth
(ii) Secondary growth
20. (a) State two importance of predation in an ecosystem.
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(b) Apart from predation, state two other biotic factors that will influence the distribution of an organism in an ecosystem.
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## 21. Differentiate between myopia and hypermetropia.

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22. State two advantages of hybrid vigour.
(2mks)
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23. Explain how the following factors determine the amount of energy human being requires in a day.
(i) Basal Metabolic Rate.
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(ii) Age
24. Explain the significance of the following processes in living organism.
(a) Reproduction.
(b) Irritability.
(c) Excretion.
25. (a) What is the role of diastema in herbivores.
(b) Nyame the two types of periodontal diseases.
(c) What is the significance of emulsification?
(1mk)
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26. Name two organelles present in unicellular organism but absent in cells of multicellular organisms.
(2mks)
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27. Explain how increased temperature affects the rate of transpiration in plants.
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28. Explain the adaptations of collenchyma as a tissue in plant.
(2mks)
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29. Name the disease of blood characterized by:
(i) Crescent shape haemoglobin.
(ii) Abnormally large number of white blood cells.
30.A rainbow lizard was seen basking on a rock. Name two ways by which it gained heat by these behavioural process.
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