

NAME: INDEX NO:

SCHOOL:.....

Candidates signature:

Date:

231/1
BIOLOGY
PAPER 1
THEORY
JULY / AUGUST 2010
2 HOURS

KAKAMEGA NORTH DISTRICT JOINT EVALUATION TESTS
Kenya Certificate of Secondary Education (K.C.S.E) 2010

231 / 1
BIOLOGY
PAPER 1

INSTRUCTIONS TO CANDIDATES

- ❖ Write your name and index number in the spaces provided.
- ❖ Answer **ALL** questions in this paper in the spaces provided.

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Question	Maximum Score	Candidates Score
1-27	80	

1. **State** how each of the following parts of the mammalian ear are adapted to their function.

a) Cochlea (2mks)

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Pinna (2mks)

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2. **Give two** ways in which endotherms lose heat to the external environment. (2mks)

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3. **What** is natural selection? (3mks)

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4. **State three** evidences that support the theory of organic evolution. (3mks)

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5. The table below shows description of sizes of glomeruli and renal tubules of two animals, which are living in different environments.

	Animal x	Animal y
Glomeruli	Large and few	Small and many
Renal tubules	Short	Long

a) **Name** the likely environment in which each animal lives. (2mks)

X:

Y:

b) **Suggest** the main nitrogenous waste produced by animal Y (1mk)

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6. A cell was found to have the following under a light microscope.
Cell membrane, irregular in shape and very small vacuoles.

Identify the type of cell above. (1mk)

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7. (a) **State** what would happen to a cell if its nucleus was removed. (1mk)

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Reason

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(b) **Give** the function of nucleolus. (1mk)

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8. (a) **Name** the products of the light reaction stage. (2mks)

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(b) **State** the site where the following stage of photosynthesis takes place. (2mks)

Dark stage

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Light stage

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9. (a) **Name two** nutrients that do not require digestion before they are absorbed. (2mks)

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(b) **What** is assimilation? (1mk)

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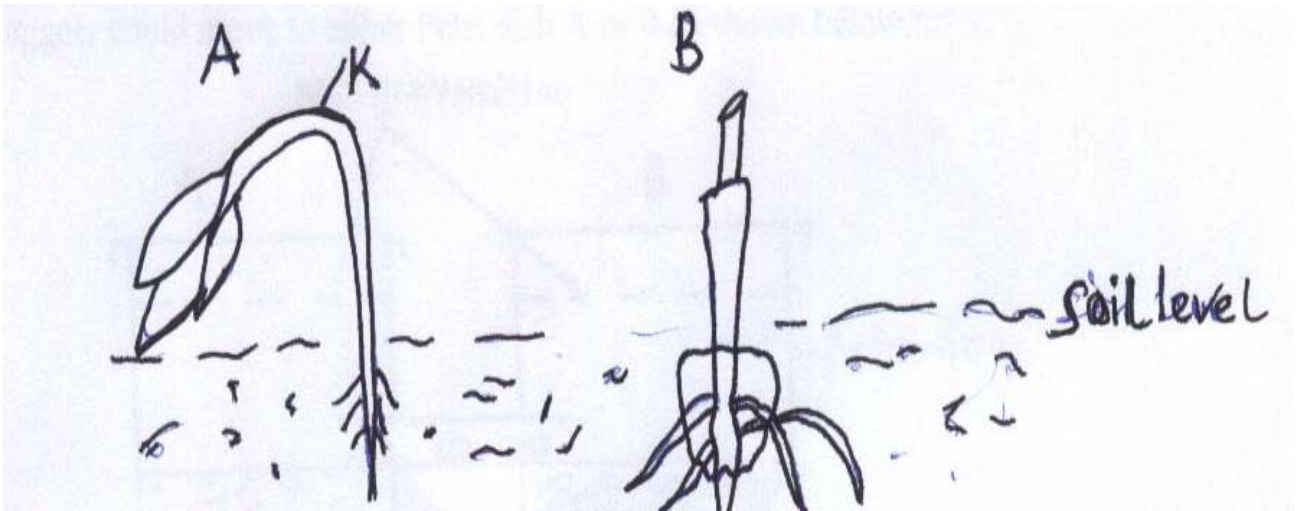
10. (a) **Give** a reason why the left ventricle muscles are thicker than the right ventricle muscles. (1mk)

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(b) **State** the form in which carbon (IV) oxide is transported in the blood. (2mks)

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11. The diagrams below represent a stage of growth in two different seeds.



(a) **Identify** the type of germination exhibited by seedlings A and B and give a reason for each identity

A

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Reason

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.....

B

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Reason

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

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12. **Explain** how the following adaptations reduce transpiration in xerophytes

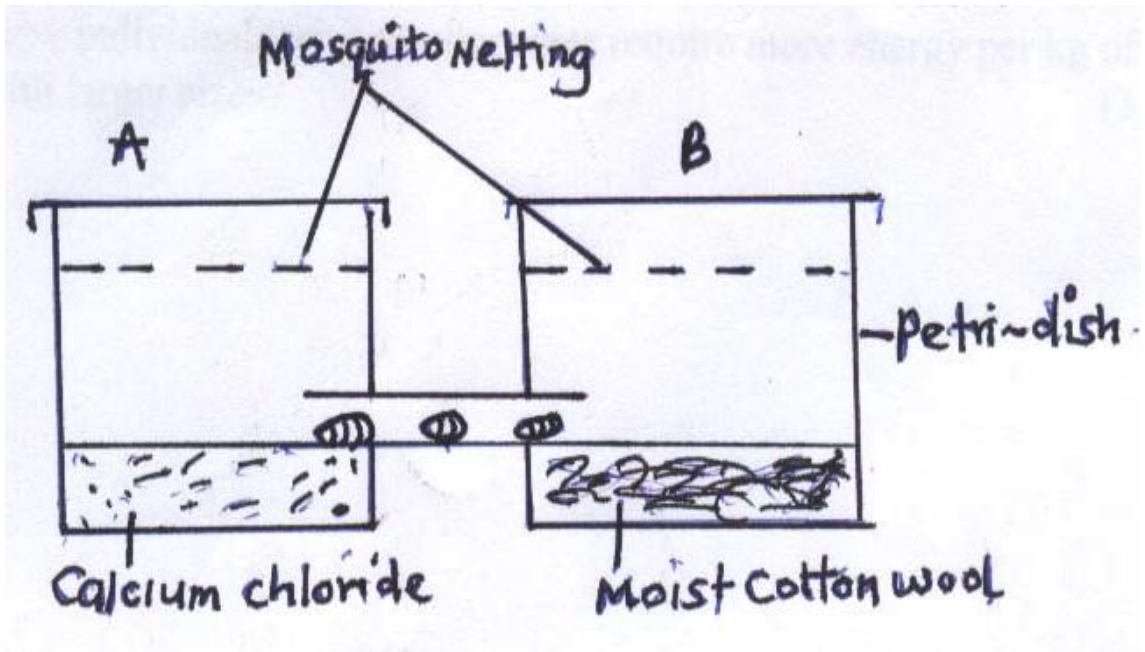
(a) Sunken stomata (2mks)

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(b) Thick waxy cuticle (1mk)

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13. The following experiment was set up in a chamber made from two connected Petri dishes. Housefly maggots were introduced at the centre of the chamber, so the maggots could move to either Petri dish A or B as shown below.



(a) **Name** the type of response being investigated in the set up. (1mk)

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(b) **State** the survival value of the response named in (a) above. (1mk)

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(c) **Give** the role of calcium chloride in the experiment above. (1mk)

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14. (a) **What** is sex linkage? (2mks)

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(b) **Name two** sex-linked characteristics in humans. (2mks)

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15. **Name** the mechanisms that hinder self —fertilization in flowering plants. (3mks)

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16. **Explain** why individuals with smaller sizes require more energy per kg of body weight than those with larger sizes? (3mks)

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17. **State** the importance of placenta and amniotic fluid during pregnancy.

Placenta

(2mks)

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Amniotic fluid

(1mk)

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18. **Distinguish** between the two patterns of evolution:

(a) Divergent and convergent evolution.

(2mks)

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(b) **Why** was Lamarks theory of evolution rejected?

(2mks)

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19. **Name** the meristematic tissues responsible for:

(a) Primary growth

(1mk)

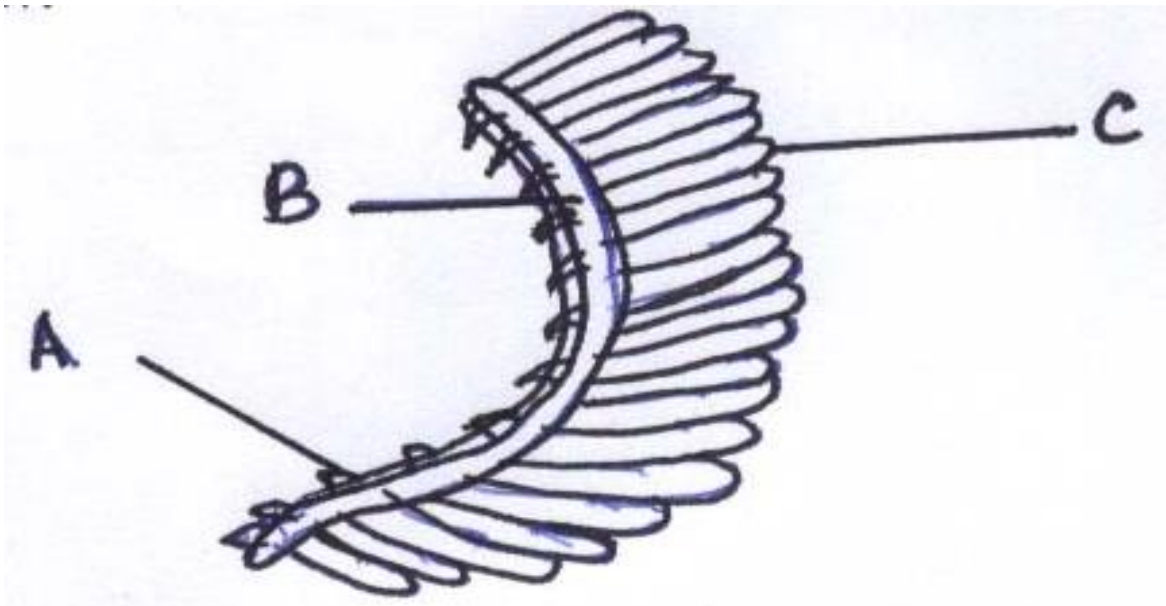
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(b) Secondary growth in plants

(1mk)

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20. The diagram below represents an organ from a bony fish, **study** the diagram and answer the questions that follow.



(a) **State** the functions of each of the following A and B

A

.....

.....B

.....

(b) **How** is the structure labeled C adapted to its function? (1mk)

.....

21. **Give** the functions of the following parts of a light microscope (2mks)

(i) Objective lens

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(ii) Condenser

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22. During a strenuous exercise, the chemical process represented by the equation below takes place in human muscles.



Substance x

(a) **Name** the process represented above (1mk)

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(b) **What** is glycolysis? (1mk)

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23. During estimation of cell sizes using a light microscope, a student found out the diameter field of view to be 2.7mm and diameter of field of view had 9 cells. The magnification was x50. **Calculate** the actual length of one cell in microns (3mks)

24. **State** the functions of the following fins of a bony fish

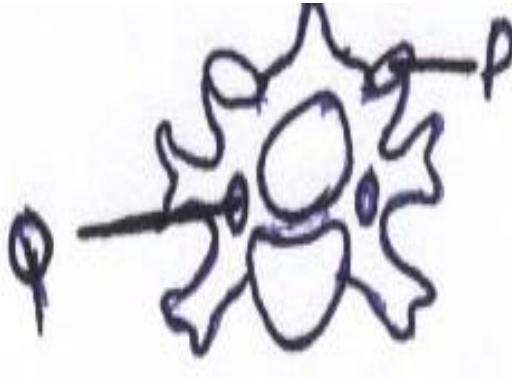
(i) Dorsal fin (2mks)

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(ii) Pelvic and pectoral fins (2mks)

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25. The diagram below represents the anterior view of a vertebra study it and answer the questions that follow



(a) (i) **Name** the identity of the vertebra (1mk)
Identity

.....
.....

(ii) **State** the function of each of the following structures P and Q (2mks)

P

.....
.....

Q

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.....

26. (a) **What** is transpiration? (1mk)

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..... (b) **Give** the importance of transpiration in green plants. (2mks)

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27. **Distinguish** between habitat and ecological niche.

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