

NAME: INDEX NO:

SCHOOL: DATE :

CANDIDATE'S SIGNATURE:

231/1
BIOLOGY
PAPER 1
JULY / AUGUST 2014
TIME: 2 HOURS

KURIA EAST SUB-COUNTY JOINT EXAMINATIONS COUNCIL 2014

Kenya Certificate of Secondary Education (K.C.S.E.)
BIOLOGY
PAPER 1
(THEORY)
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

- (a) Write your **Name**, **School** and **Index Number** in the spaces provided at the top of this page.
- (b) **Sign** and write the **Date** of Examination in the spaces provided above.
- (c) Answer **ALL** questions in the spaces provided.

FOR EXAMINER'S USE ONLY

QUESTION	MAX. SCORE	CANDIDATE SCORE
1 – 29	80	

1. State **two** features that hinder self-pollination in plants. (2mks)

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.....

2. (a) Name the structure :

(i) Found between two vertebrae. (1mk)

.....

(ii) That attaches muscle to bones. (1mk)

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(b) State **two** functions of arm of a microscope. (2mks)

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.....

3. (a) State **two** functions of cell sap. (2mks)

.....
.....

(b) State **two** functions of arm of a microscope. (2mks)

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.....

4. The letter H and h represent the dominant and recessive genes for haemophilia respectively. Write down the genotype of the following:- (3mks)

(a) Homozygous dominant.

.....
.....

(b) Homozygous recessive

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.....

(c) Heterozygous

.....
.....

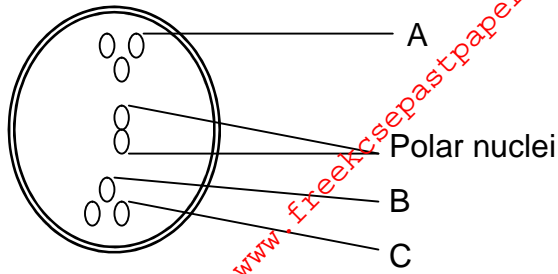
5. Give **two** reasons why accumulation of lactic acid during vigorous exercise leads to increase in heart beat. (2mks)

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6. Sweat accumulates on a person's skin in a hot humid environment. Explain. (2mks)

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.....

7. Study the diagram below and answer questions that follows.



(i) Name the parts labeled: (3mks)

A:.....

B:.....

C:.....

(ii) What does the part B form after fertilization? (1mk)

.....

8. Explain **three** ways in which red-blood cells are adapted to their function. (3mks)

.....

9. Give the function of the following organelle:-

(a) Ribosome:..... (1mk)

(b) Lysosome:..... (1mk)

10. Three people got road accident at Kehancha and all suffered head injuries. Indicate the part of the brain each suffered by patients showing the following conditions:-

(a) Loss of memory and speech. (1mk)

.....

(b) Inability to maintain proper body balance and position. (1mk)

.....

(c) Inability to regulate body temperature. (1mk)

.....

11. Name the strengthening material found in the following support tissues: (2mks)

(a) Collenchyma:.....

(b) Xylem:.....

12. A student from St. Joseph Ntimaru made three potato strips from a fresh potato. Each strip measured 70mm. One strip was placed in solution P and the other in solution Q. The last strip was placed in an empty Petri-dish. The strips were analysed after 20 minutes and the results recorded below.

Strip in solution P	Firm
Strip in solution G	Flabby
Strip in Petri-dish	Same as before

(a) Account for observation recorded in strips kept in solution P and Q after 20 minutes.

(i) In solution P (2mks)

.....

(ii) In solution Q (2mks)

.....

(b) State the role of the strip kept in the empty Petri-dish for 20 minutes. (1mk)

.....

13. (i) What is meant by vestigial structure? (1mk)

.....

.....

(ii) Give an example of vestigial structure in human. (1mk)

.....

.....

14. (a) State what happens during the light stage of photosynthesis. (2mks)

.....

.....

(b) State the aspect of photosynthesis that is tested using a variegated leaf. (1mk)

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.....

15. State **two** other gaseous exchange structures in plants beside stomata. (2mks)

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16. (a) Name any **two** digestive enzymes that are produced in an inactive form. (2mks)

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.....

(b) Give a reason as to why the above named enzyme ???? (1mk)

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17. State **three** structural differences between DNA and RNA. (3mks)

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18. A group of Biology students picked an organism from the shores of the school dam.

They observed and classified organisms as follows:-

KINGDOM – Animal

DIVISION – Arthropoda

CLASS – Chilopoda

(a) State **two** mistakes the students made in their effort to classify. (2mks)

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.....

(b) State **two** characteristics that makes millipedes different from centipedes. (2mks)

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.....

19. (a) Nitrates is the form in which Nitrogen is availed to plant. The process of breaking down Nitrates to Nitrites, Ammonia and even Nitrogen is known as: (1mk)

.....

(b) List **two** adaptations of emergent hydrophytes. (2mks)

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.....

20. (a) Define the term metamorphosis. (1mk)

.....
.....

(b) Explain the role of the following hormones in insect metamorphosis. (2mks)

(i) Moulting hormone:.....

(ii) Juvenile hormone:.....

(c) State **two** adaptive advantages of larval stage. (2mks)

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.....

21. List down **two** features that affect the rate of active transport. (2mks)

.....
.....

22. (a) State **two** factors that affect the rate of active transport. (2mks)

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.....

(b) State **two** conditions that must be present for active transport to take place. (2mks)

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23. The diagram below is a mature fruit of dicotyledonous plant.



(a) Identify part A. (1mk)

.....

(b) Suggest the possible agent of dispersal. (1mk)

.....

(c) What is the role of the style of flowers in the process of double fertilization. (2mks)

.....
.....

24. Name the major mineral element in the composition of the following:

(a) Haemoglobin (1mk)

.....

(b) Chlorophyll molecule. (2mks)

.....

25. List **two** functions of centriole. (2mks)

.....
.....

26. A patient whose blood group is A- negative died shortly after receive blood from a person of blood group B+ positive. Explain why. (2mks)

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.....

27. Why does the concentration of lactic acid decrease after strenuous exercise? (2mks)

.....
.....

28. A certain plant was found to have 28 chromosomes in its petal cells. State the number of chromosomes in the plant.

(i) Egg cell in the embryo sac. (1mk)

.....

(ii) Endosperm cell. (1mk)

.....

29. Name the causative agent of cholera. (1mk)

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