

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

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

Candidate's Signature .....

Date: .....

**RACHUONYO SOUTH SUB-COUNTY JOINT EVALUATION EXAM**  
*Kenya Certificate of Secondary Education (K.C.S.E.)*

231/1  
Biology  
Paper 1  
2 hours

**INSTRUCTIONS TO CANDIDATES**

- Write your name, Index number and school in the spaces provided above.
- Answer All questions in the spaces provided on the question paper.
- Sign and write the date of examination in the spaces provided above.
- Additional pages must NOT be inserted.

**FOR EXAMINER'S USE ONLY**

Question	Maximum Score	Candidate's Score
1-29	80	

*This paper consists of 7 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.*

1. What is meant by the term sex linkage. (1mk)

.....

2. Part of one strand of DNA molecule was found to have the following sequence

**G-C-C- G – A – T- T – T – A – C – G – G**

What is the sequence

(i) of the complimentary DNA strand? (1mk)

.....

(ii) On a m-RNA strand copied from this DNA portion? (1mk)

.....

3. State **three** regions on a plant where the end products of photosynthesis are translocated to? (3mks )

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4. With reference to circulatory system only give **two** reasons why birds and mammals are more active compared to other organisms? (2mks)

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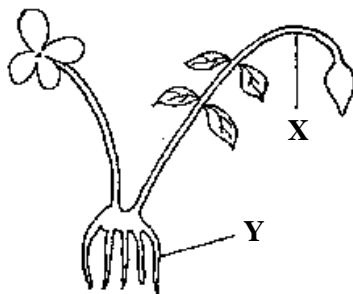
5. (a) What **three** characteristics are used to divide the phylum arthropoda into classes? (3mks)

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.....

(b) The diagram below shows an organisms from a division in Kingdom plantae. Study it and answer the questions that follow.



(i) Identify the division from which the plant was obtained. (1mk)

.....

(ii) Name the parts labelled X and Z (2mks )

**X**.....

**Z**.....

6. What is the relationship between a genus and a species? (1mk)

.....  
.....

7. A drawing of 3 cm was made of a giant spider whose actual length was 7cm. calculate the magnification of the drawing? (3mks)

8. Explain why osmosis is described as a special type of diffusion? (1mk)

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.....

9. The following table shows the estimated number of organisms recorded in a dam.

<b>Organisms</b>	<b>Number</b>
<b>Small fish</b>	<b>3500</b>
<b>Microscopic algae</b>	<b>12000</b>
<b>Crocodiles</b>	<b>100</b>
<b>Large fish</b>	<b>950</b>
<b>Mosquito larvae</b>	<b>8900</b>

(a) Construct a possible food chain for the dam? (1mk)

(b) Construct a pyramid of numbers for the given data? (1mk)

(c) Explain the shape of pyramid obtained? (2mks)

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10. (a) Explain why leaves of most plants are thin and broad. (2mks)

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.....

(b) State the function of the following enzymes during digestion in the stomach?

(i) Pepsin (1mk)

.....

(ii) Renin (1mk)

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11. Explain the following:

(i) Respiratory surface must be moist? (1mk)

.....

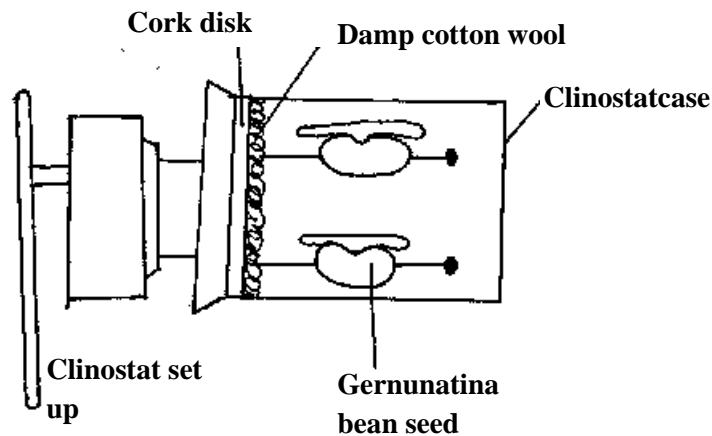
(ii) Respiratory surface must be thin (1mk)

.....

(iii) Palisade cells are cylindrical shaped and arranged with long axis perpendicular to the leaf surface. (1mk)

.....

12.



Germinating beans seeds were placed in the clinostat as shown in the diagram and left for three days.

(a) What is a clinostat. (1mk)

.....

(b) The Clinostat was switched on and left to run for the three days. Suggest the direction the seedling will be facing at the end of the three days. (1mk)

.....

(c) Give a reasons for your answer in (b) above? (1mk)

.....

13. Explain why the body temperature of a healthy person rises slightly during humid days? (2mks)

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.....

14. Nocturnal animals such as owl are capable of seeing fairly at night. What **two** retinal adaptations have made this possible? (2mks)

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15. State the function of the following organelles:

(i) Granulated Endoplasmic reticulum (1mk)

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(ii) Nucleolus (1mk)

.....

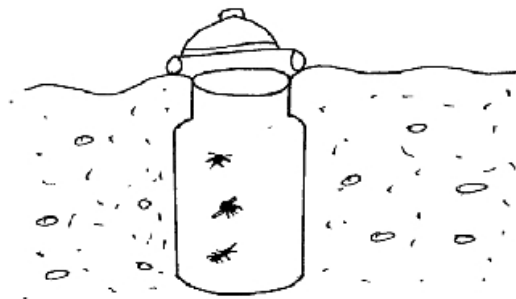
16. State **three** gaseous exchange sites in plants? (3mks)

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17. The diagram below shows an apparatus used during collection of specimen or biological study.



(a) Identify the apparatus? (1mk)

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(b) What is the use of the apparatus named above? (1mk)

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18. List **three** limitations of fossil records as an evidence of organic evolution? (3mks)

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19. Distinguish between enzyme co-factors and co-enzymes? (2mks)

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20. Give **two** reasons for the rapid growth during the exponential phase of growth curve? (2mks)

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21. Give **two** reasons why *Carolus Linneaus* preferred the use of latin language in the scientific naming of living organisms. (2mks)

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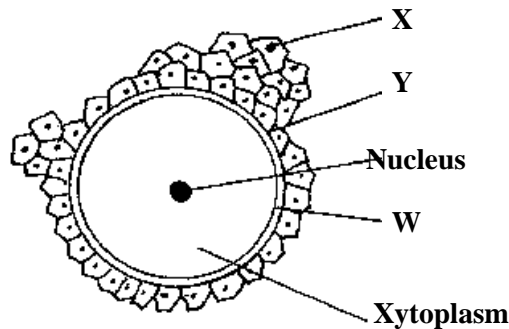
22. State **three** roles played by active transport in living organisms. (3mks)

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23. List **three** factors affecting the rate of respiration? (3mks)

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24. Study the diagram below and answer the questions that follow.



(a) Identify the cell (1mk)

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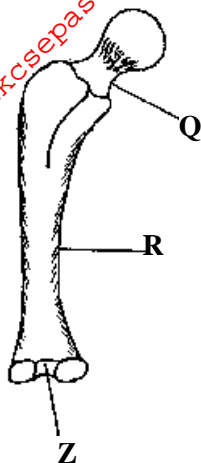
(b) Label the parts **X,Y** and **W** (3mks)

**X** .....

**Y** .....

**W** .....

25. The diagram below shows a bone of the hind limb. Study it and answer the questions that follow.



(a) Name the bone (1mk)

.....

(b) Name the parts labelled Q and A (2mks)

Q.....

A.....

(c) Name the structure that articulates with the part labelled Z and the joint formed? (2mks)

Structure .....

Joint .....

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26. List **two** functions of inter-vertebral discs between two adjacent vertebrae. (2mks)

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27. Explain why it is becoming more difficult to treat malaria using chloroquine? (4mks)

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28. State **four** ways by which the ileum is adapted for absorption of food materials? (4mks)

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29. Name **two** processes that contribute to variation during gamete formation? (2mks)

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