

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

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

Candidate's Signature .....

Date: .....

# NYAMIRA SUB-COUNTY JOINT EVALUATION EXAM

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

231/1  
Biology  
Paper 1

## INSTRUCTIONS TO CANDIDATES

- Write your **name** and **index number** in the spaces provided above
- **Sign** and write the **date** of examination in the spaces provided.
- Answer **all** the questions in the spaces provided.

### For Examiners Use Only

Question	Maximum score	Candidate's score
1- 30	80	

*This paper consists of 8 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.*

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1. (a) What is haemophilia? (1mk)  
.....  
.....
- (b) State **two** symptoms of the condition above (2mks)  
.....  
.....
2. (a) Name **two** photochemical cells in the human retina (2mks)  
.....  
.....
- (b) Name one chemical substance and two mineral ions involved in impulse transmission in mammals (3mks)  
Chemical substance (1mk)  
.....  
Mineral ions (2mks)  
.....
3. State **three** characteristics of a species (3mks)  
.....  
.....
4. State why iodine is necessary for complete development of a tadpole into adult (3mks)  
.....  
.....
5. Name the main feature that differentiate the axis from other cervical vertebrae (1mk)  
.....
6. The illustration below show a biological process in animals  
  
(i) Name the process (1mk)  
.....  
(ii) State the biological significance of the above process in (i) above (2mks)  
.....  
(iii) Name the salts that aid in the above process in (i) above (2mks)  
.....
7. State the names used to describe the following leaf arrangements

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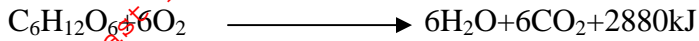
8. Name the monosaccharides that make up the disaccharides below
- (a) Sucrose (1mk)  
.....
  - (b) Lactose (1mk)  
.....
  - (c) Maltose (1mk)  
.....
9. State the stage of cell division in which the following events occur
- (i) Replication of the genetic material (1mk)  
.....
  - (ii) Exchange of genetic material (1mk)  
.....
10. The reaction represented by equation below occurs in the body  
Hydrogen peroxide  $\xrightarrow{\text{Enzyme}}$  Oxygen + Water
- (a) Name enzyme **Z** (1mk)  
.....
  - (b) Name an organ in the human body where this reaction occurs (1mk)  
.....
  - (c) State the biological importance of the reaction above (1mk)  
.....
11. Name the digestive enzyme found in the human mouth (1mk)  
.....
12. Study the experiment below that was set to investigate a certain process in plants
- (a) State the aim of the experiment above (1mk)  
.....
  - (b) What changes would be observed if the set up was left to stand for six hours (1mk)  
.....  
.....
  - (c) State **one** precaution observed when setting up the experiment (1mk)  
.....
  - (d) Suggest a suitable control experiment for the one above (1mk)  
.....
13. State **one** use of the following excretory products of plants (2mks)
- (i) Latex  
.....

(ii) Colchicine

14. Briefly explain evolution by cell biology (3mks)

15. (a) Define respiratory quotient (1mk)

(b) Given the equation below, calculate the respiratory quotient (eq) (2mks)



16. The diagram below represents a specialized cell. Use it to answer the following questions

(a) Identify the cell (1mk)

(b) State **two** adaptations of the cell above to its functions (2mks)

17. State how each of the cells below are specialized to carry out their functions

(a) Palisade cell (1mk)

(b) A sperm cell (1mk)

18. What is the meaning of the following terms

(a) Homeostasis (1mk)

(b) Osmoregulation (1mk)

19. State the functions of the following parts of microscope

(i) Condenser (1mk)

(ii) Body tube (1mk)

20. (a) Differentiate between epigeal and hypogeal germination (2mks)

(b) Name **two** hormones that are responsible for breaking seed dormancy (2mks)

21. The photographs labeled K and L below are bones from a mammal

(a) Identify the bones above  
K

(2mks)

.....

L

.....

22. State the importance of the following

(i) Reversed stomatal rhythm to desert plants

(1mk)

.....

(ii) Closing of stomata on a hot dry sunny day

(1mk)

.....

(iii) How does wind affect transpiration rate?

(1mk)

.....

.....

23. Study the diagram below representing a plant structure and answer the following questions

(a) Name the part labeled T

(1mk)

.....

(b) Name the structure that performs the same function as the stoma in a woody stem

(1mk)

.....

(c) How is part u adapted to its function S?

(2mks)

.....

.....

24. State **two** sites used for gaseous exchange in sub-merged aquatic plants

(2mks)

.....

.....

25. The figure below shows a secretion of a nucleic acid strand

With a reason, identify the type of nucleic acid shown above

(2mka)

Type

.....

Reason

.....

26. A flower was found to have the following characteristics

Inconspicuous petals

Long feathery stigma

Small light pollen grains

(a) What is the likely agent of pollination of the flower? (1mk)

.....

(b) What is the significance of the long feathery stigma in the flower (1mk)

.....

27. Explain the role of the following in germination

(a) Oxygen (1mk)

.....

(b) Cotyledons (2mks)

.....

28. State **three** structural differences between arteries and veins (3mks)

.....

.....

29. Differentiate between the following ecological terms

(a) Population (1mk)

.....

(b) Community (1mk)

.....

(c) Niche (1mk)

.....