

NAME..... DATE .....

INDEX NO. .... SIGNATURE .....

**231/1**  
**BIOLOGY**  
**PAPER 1**  
**(THEORY)**  
**TIME: 2 HOURS**

## **MBOONI WEST SUB - COUNTY JOINT EVALUATION TEST, 2014**

*Kenya Certificate of Secondary Education*

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

### **INSTRUCTIONS TO CANDIDATES.**

- Write your name and index number in the spaces provided above.
- Sign and write the date.
- Answer **ALL** the questions in the spaces provided.
- Answers must be written in the spaces provided in the question paper. Additional pages must not be inserted.
- This paper consists of 9 printed pages. Candidates should check to ensure that all pages are printed as indicated and no questions are missing

### **FOR EXAMINER'S USE ONLY.**

<b>Questions</b>	<b>Maximum score</b>	<b>Candidate's score</b>
1 - 27	80	

1. a) Name the organelle where Kreb's/ citric cycle take place in a cell.

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(b) Where are lysosomes synthesized

( 1mark)

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2. Distinguish between ecological niche and habitat.

(2mark)

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3. State the importance of osmo - regulation in organisms

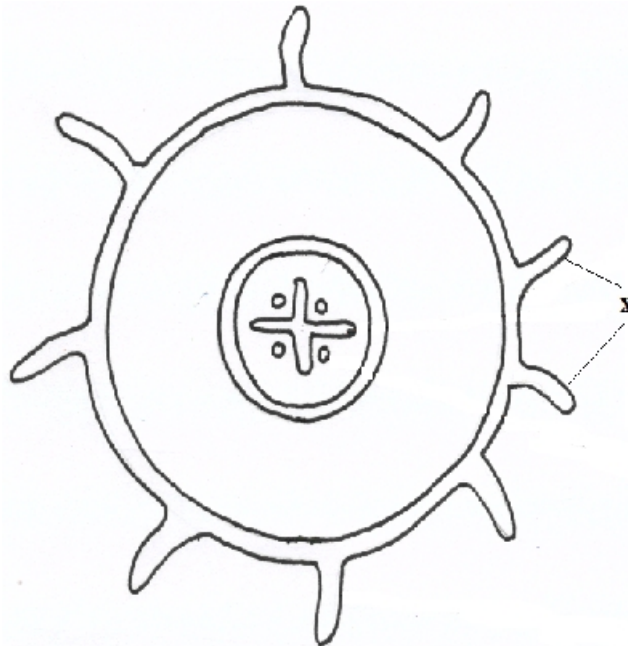
( 2 marks)

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4. Explain why unicellular organisms such as paramecium lack complex organs for gaseous exchange. ( 2marks)

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5. The diagram below represents a transverse section of a plant part. Study it and answer the questions that follow.



a) Name the class in which the plant belongs.

( 1marks)

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b) Give a reason for answer (a) above

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.....

c) State one adaptation for the structures labeled X to their functions.

(1mark)

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6. State the function of the following structures in the human ear.

(a) Semi – circular canals.

( 1mark)

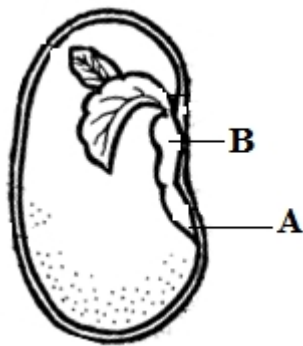
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(b) Eustachian tube.

( 1mark)

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The diagram below shows the internal structure of a broad bean seed. Study it and answer the questions that follow.



(a) Name the part labeled B.

(1 mark)

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.....

(b) Why is it important that the part labeled A develops first during germination?

( 2 mark)

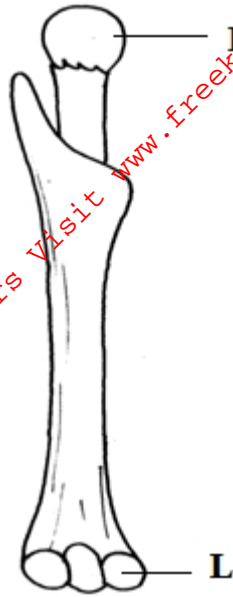
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8. Explain what causes global warming.

( 3 marks)

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9. The diagram below represents a mammalian bone.



(a) Identify the bone (1 mark)

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(b) i) Name the bones that articulate with this bone at points K and L (2 marks)

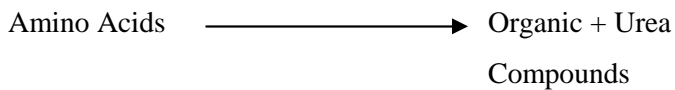
K

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L

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10. The equation below represents a metabolic process that occurs in the mammalian liver.



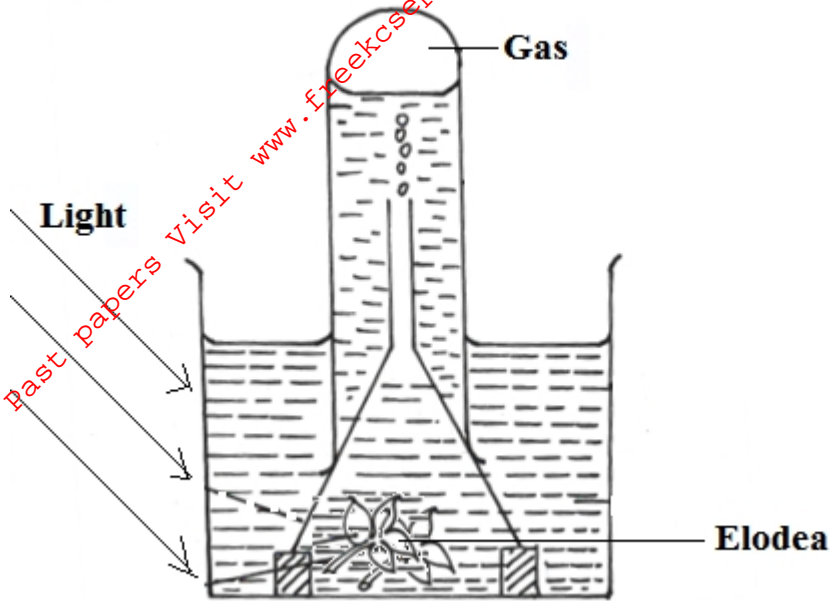
(a) Name the process (1 mark)

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(b) What is the importance of the process to the mammal? (2marks)

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.....

11. The diagram below represents a set up that was used to investigate a certain process in a plant.



(a) State the process that was being investigated. (1 mark)

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(b) Other than the factors shown, state two factors that would affect the process named in (a) above. (2 mark)

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12. Give an example of the sex linked trait in humans on

Y – Chromosomes (1mark)

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X – Chromosomes (1 mark)

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13. Explain why a rat has a higher food intake compared to a lizard of the same body weight. (4 marks)

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14. (a) Mutua and Mwende used a light microscope to observe guard cells in a leaf surface.

They indicated a magnification of X 450 .Given that the eye piece was marked X10, work out the objective lens magnification. (2 marks)

(b) State the function of fine adjustment knob.

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15. State two structural differences between skeletal and smooth muscles.

( 2 marks)

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16. Outline two roles of active transport in human beings.

( 2 marks)

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17. State three advantages of asexual reproduction in plants.

(3 marks)

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18. a).Name the causal organism for amoebic dysentery.

( 1 mark

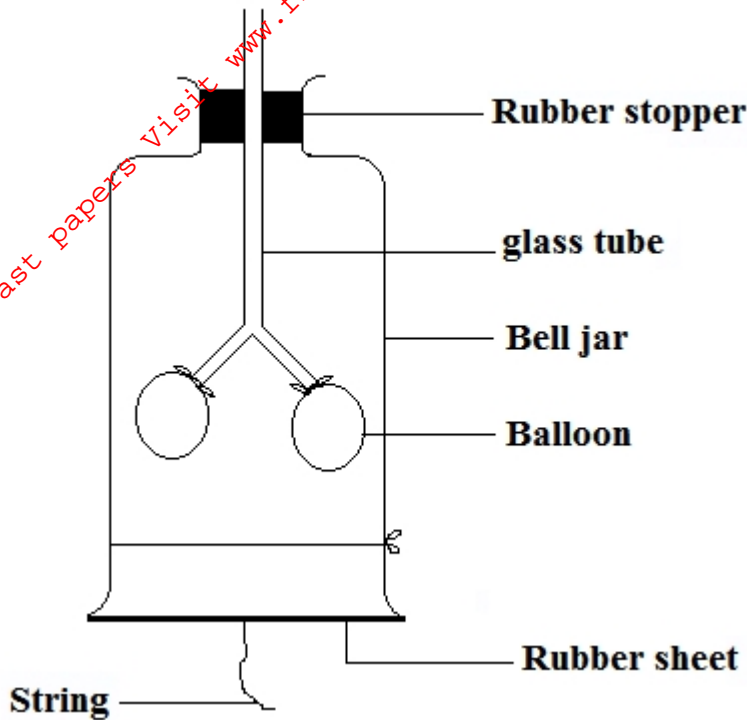
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b) state three preventive measures of schistosomiasis in human beings

( 3 mark)

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19. Tom, a form two student set up the apparatus shown below to demonstrate the breathing mechanism in a mammal.



(a) What structure in a mammal is represented by each of the following? ( 2marks)

i) Glass tube

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ii) Rubber sheet

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(b) Explain what will happen to the balloons if the rubber is pulled down wards. ( 2 marks)

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20. a) What is adaptive radiation? ( 2marks)

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b) Explain why crossbreeding is important in animal breeding. (2 marks)

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21. a) state the most suitable biological tool for collecting the following organisms:-

i) A moth from a coffee farm. ( 1 mark)

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ii) Ants from a tree trunk. ( 1 mark)

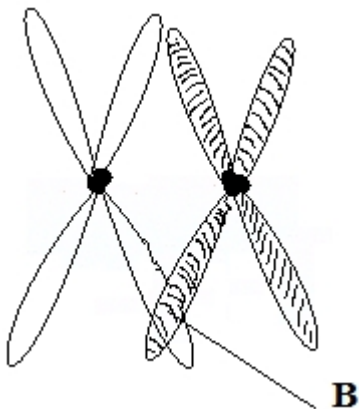
b) State two distinguishing characteristics of the kingdom protocista. (2 mark)

22. a) Name the hormone that stimulate the maturation of the graafian follicles to release a mature ovum in female reproductive cycle. (1mark)

b) Explain why menstruation does not take place after fertilization in human beings. (2marks)

23. How does sunken stomata help in lowering transpiration? (3marks)

24. The diagram below shows a phenomenon which occurs during cell division.



a) Identify the stage of cell division in which this phenomenon occurs. (1 mark)

b) State the importance of the phenomenon taking place in the part labeled B. (2 marks)



25. a) An organism was found to have a dental formula

$$\begin{array}{cccc} i & \frac{0}{3} & c & \frac{0}{1} & pm & \frac{3}{2} & m & \frac{3}{3} \end{array}$$

i) State the mode of feeding of the organism. (1mark)

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ii) Give a reason for your answer in (i) above. ( 1 mark)

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b) Name the vitamin which plays an important role in the formation of blood cells. (1mark)

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26. a) State **one** advantage of double circulation over single circulation. ( 1mark)

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b) State **two** adaptations of blood capillaries to their functions. (2marks)

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27. a) Name a growth hormone that has inhibitory effects in plants growth. ( 1mark)

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b) State two characteristics of a meristematic cells. (2marks)

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28. Write down two functions of exoskeleton in the phylum Arthropoda. (2 marks)

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