

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

INDEX NO. .... CANDIDATE'S SIGNATURE .....

231/1  
BIOLOGY  
PAPER 1  
(THEORY)  
JULY/AUGUST, 2010.  
TIME : 1½ HOURS.

## MBOONI WEST DISTRICT JOINT EVALUATION TEST

**Kenya Certificate of Secondary Education.**

231/1  
BIOLOGY  
PAPER 1  
(THEORY)  
TIME: 1½ HOURS.

### INSTRUCTIONS TO CANDIDATES.

- Write your name and index number in spaces provided above.
- Sign and write the date.
- You are required to spend the first 15 minutes of the 1 ½ hrs allowed for the paper reading the whole paper carefully before commencing your work.
- 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.

### FOR EXAMINER'S USE ONLY.

Questions	Maximum score	Candidate's score
1- 27	80	

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

1. (a) Explain why lysosomes are sometimes called ‘suicidal bags’

1 mark

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(b) Why are lysosomes more frequent in the phagocytotic cells than in other cells?

2 marks

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2. Distinguish between osmosis and active transport

2 marks

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3. The diagram below shows the base sequence of part of a nucleic acid strand.



(a) Giving a reason state whether it is part of a DNA or a RNA strand.

1 mark

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(b) Show the complementary RNA strand.

1 mark

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4. State **three** structural differences between biceps muscles and muscles of the gut.

3 mark

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5. Sugar was detected in the urine of a patient during a laboratory test.

(a) Name the type of sugar that was detected

1 mark

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(b) Name the hormone that is likely to have been deficient.

1 mark

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(c) What is the name given to the condition the person was suffering from?

1 mark

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6. Name the causative agent of the following human diseases.

3 marks

i) Pneumonia

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ii) Cholera

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iii) Gonorrhoea

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7. Name **two** classes of phylum arthropoda which have a cephalothorax.

2 marks

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8. State **three** adaptations of the proximal convoluted tubule to its function.

3 marks

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9. (a) What is single circulatory system?

1 mark

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(b) Name an organism which has single circulatory system.

1 mark

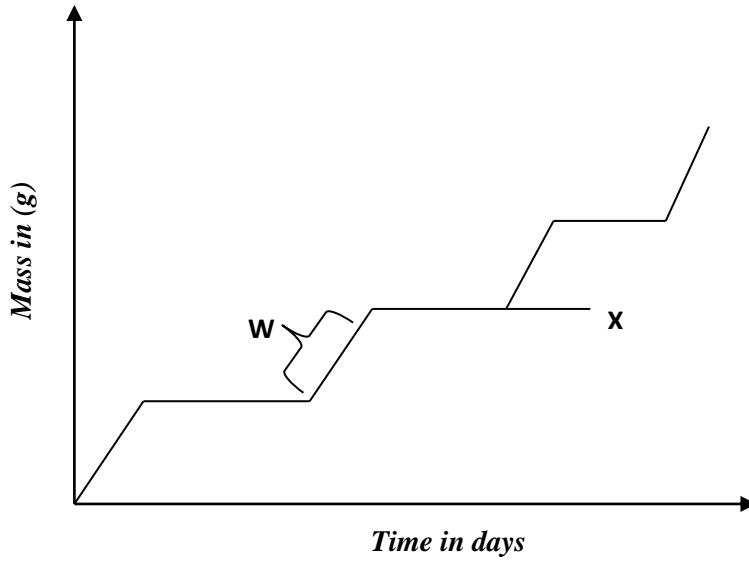
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(c) Name the opening to the chamber of the heart of an insect

1 mark

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10. The graph below represents the growth of animals in a certain phylum



(a) Name the type of growth pattern shown on the graph. 1 mark

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(b) Identify the process represented by X. 1 mark

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(c) Name the hormone responsible for the process in (b) above 1 mark

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11. (a) State the meaning of the following terms used in floral biology: 3 marks

(i) Incomplete flower

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(ii) Actinomorphic flower

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(iii) Zygomorphic flower

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12. Explain why Lamarck's Theory of evolution is not accepted by biologists today. 2 marks

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13. State **two** types of movable joints found in mammals. 2 marks

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14. State how alveolus of the lungs of a mammal is adapted to its function.

2 marks

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15. Two heterozygous pea plants were crossed. 40 seeds were collected

(a) How many of these seeds were likely to be homozygous? 1 mark

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(b) How many different genotypes are there in the offsprings? 1 mark

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16. (a) Name **three** types of cells that carry out photosynthesis. 3 marks

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17. (a) What is environmental degradation? 1 mark

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(b) State **three** cases of environmental concern that have resulted from the increased human population in recent years 3 marks

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18. Explain the role of the following factors in breaking seed dormancy 2 marks

(a) Light

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(b) Soaking in water

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19. (a) What is meant by the term *sex-linkage*? 2 marks

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(b) Name two sex-linked traits in humans 2 marks

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20. What is the role of vascular bundles in plant nutrition? 3 marks

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21. (a) Where in a mammal is the ovum fertilized? 1 mark

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(b) State **three** adaptations of human spermatozoa that enhances the process of fertilization 3 marks

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22. Enzyme + Substrate  $\rightleftharpoons$  Enzyme + Product  
From the equation above name **two** properties of enzymes exhibited in the equation 2 marks

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23. For each of the following types of cells state **one** way in which it is different from a typical animal cell.  
State the function of each type of cell.

a. Cell lining the trachea (windpipe) 1 mark

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b. Red blood cell 2 marks

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24. (a) What is homeostasis? 1 mark

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(b) Name **three** processes in the human body in which homeostasis is involved. 3 marks

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25. (a) State **two** ways by which plants compensate for their inability to locomote 2 marks

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(b) Explain why herbaceous plants don't grow to great heights 1 mark

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26. Give reasons why a woman excretes less urea when she becomes pregnant 2 marks

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27. State the functions of the following parts of the microscope 2 marks

a. (i) Condenser

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(ii) Mirror

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b. State the importance of the following in microscopy: 2 marks

(i) Cutting thin sections

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(ii) Staining

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