

Name.....

Index No...../.....

School.....

Date

Candidate's Signature.....

231/1

BIOLOGY

(THEORY)

Paper1

JULY / AUGUST 2012

Time: 2 Hours

BUTULA DISTRICT FORM FOUR JOINT MID YEAR EXAMINATIONS - 2012

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

231/1

BIOLOGY

(THEORY)

Paper1

JULY / AUGUST 2012

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

- Write your name and Index Number and the Name of your school in the spaces provided above.
- Sign and write the date of examination into each space provided above
- Answer ALL the questions in the spaces provided.

*This paper consists of 4 printed pages.
Candidates should check the question paper to ensure that all
pages are printed as indicated and no questions are missing*

1. State the functions of the following points of a light microscope.

(a) Diaphragm (1mk)

.....

(b) Condenser (1mk)

.....

2. State the functions of the following organelles.

(a) Nucleolus (1mk)

.....

(b) Ribosomes (1mk)

.....

3. The reaction represented by the equation below occurs in the body.



(a) Name enzyme Y. (1mk)

.....

(b) Name an organ in the body where the reaction occurs. (1mk)

.....

(c) What is the significance of the reaction (1mk)

.....

4. (a) Name two disorders in man that occur through gene substitution (2mks)

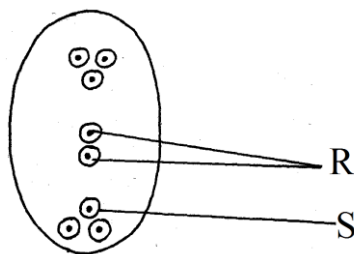
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(b) Give two advantages of polyploidy in plants. (2mks)

.....

.....

5. Study the diagram of the embryo sac below and answer questions that follow.



(a) Name the type of fertilization that occurs in the embryo sac. (1mk)

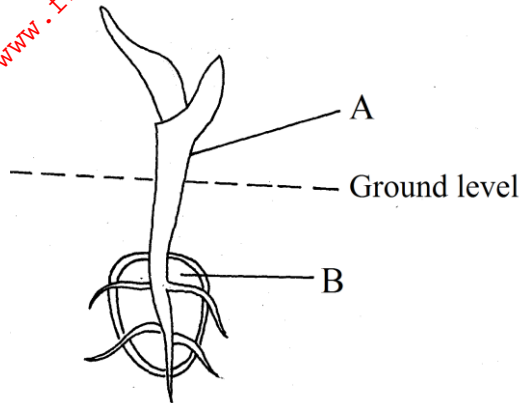
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(b) What do the structure labelled R and S develop into after fertilization. (2mks)

R.....

S.....

6. The diagram below represents a maize seedling



(a) (i) Name the type of germination exhibited by maize. (1mk)

.....

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

.....

(b) State the functions of the parts labelled A and B. (2mk)

A.....

B.....

7. (a) Explain how the following factors control population.

(i) Predation (1mk)

.....

.....

(ii) Competition (1mk)

.....

.....

(iii) Parasitism (1mk)

.....

.....

(b) A cat was used to control the population of rats.

(i) What term is used to refer to this method. (1mk)

.....

(ii) State one advantage of using the method you named in (i) above. (1mk)

.....

8. State the role played by the following substance in digestion.

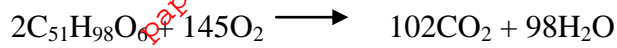
(i) Hydrochloric acid (2mks)

.....
.....

(ii) Bile salts (2mks)

.....
.....

9. The chemical equation below represent a reaction that occurs in cells.



(i) Calculate the respiratory quotient (RQ) (2mks)

.....
.....
.....
.....

(ii) Identify the substrate used in the reaction. (1mk)

.....

(iii) Give two reasons why the substrate you have identified in 9. (ii) above is not the not the main respiratory substrate. (2mks)

.....
.....
.....

10. Explain what happens in humans when the concentration of glucose in the blood decreases below normal level. (4mks)

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.....
.....
.....

11. State two adaptations of the alveolus to its functions. (2mks)

.....
.....

12. (a) Explain the role of oxygen in Active transport (1mk)

.....
.....

(b) Name two processes that depend on Active transport in animals (2mks)

.....
.....
.....

13. Name support tissues in plants thickened with:

(a) Cellulose (1mk)

.....

(b) Lignin (1mk)

.....

14. State three biological importance of tropisms in plants (3mks)

.....
.....
.....

15. (a) What are Analogous structures? (1mk)

.....

(b) Give two examples of Homologous structures (2mks)

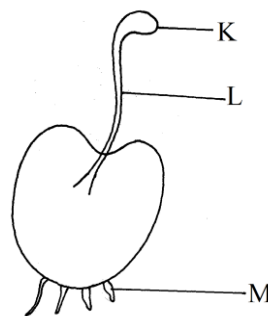
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16. State three limitations of fossil records as an evidence of organic evolution (3mks)

.....
.....
.....

17. Study the diagram below and answer questions that follow



(a) State the division the organism belongs (1mk)

.....

(b) Name the parts labelled K and L (1mk)

K.....

L.....

(c) What is the function of the part labelled M. (1mk)
M.....

18. Explain the role of the following hormones in reproduction.

(a) Progesterone (2mks)

.....
.....

(b) Oestrogen (2mks)

.....
.....

19. State two factors that hinder self-pollination and fertilization. (2mks)

.....
.....
.....

20. A mango tree is known as mangifera Indica

(a) Identify two mistakes made in the writing of the name (2mks)

.....
.....

(b) What is the scientific naming called? (1mk)

.....

21. State three methods that could be used to determine the diet of wild animals in an ecosystem (3mks)

.....
.....
.....
.....

22. State two ways in which chloroplasts are adapted for photosynthesis (2mks)

.....
.....
.....

23. Name joints formed between the:

(a) Humerus and scapula (1mk)

.....

(b) Cranial bones (1mk)

.....

24. State the role of the following chemicals in a test for non-reducing sugar.

(i) Hydrochloric acid (1mk)

.....

(ii) Sodium hydrogen carbonate (1mk)

.....

25. Name two chemical compounds that are protein in nature that regulate metabolic activities in the body (2mks)

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.....

.....

26. State three environmental factors that increase the rate of transpiration. (3mks)

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27. Carbon (II) oxide is a respiratory poison. Explain (3mks)

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