

NAME:.....

INDEX NO:.....

SCHOOL:.....

DATE:.....

SIGN:.....

231/1  
BIOLOGY  
PAPER 1  
(THEORY)

JULY/AUGUST - 2012  
TIME: 2 HOURS

**BORABU-MASABA DISTRICTS JOINT EVALUATION TEST– 2012**  
*Kenya Certificate of Secondary Education (K.C.S.E)*

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the spaces provided at the top of this page.
2. Sign and write the date of examination in the spaces provided above.
3. Answer **all** the questions.
4. Answers must be written in the spaces provided in the question paper.
5. Additional pages must **not** be inserted.

**FOR EXAMINERS USE ONLY.**

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
	1 – 31	80	

*This paper consists of 8 printed pages.*

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

**Answer ALL questions in the spaces in this paper**

1. Name two components of blood that are not present in glomerular filtrate. (2mks)

i).....

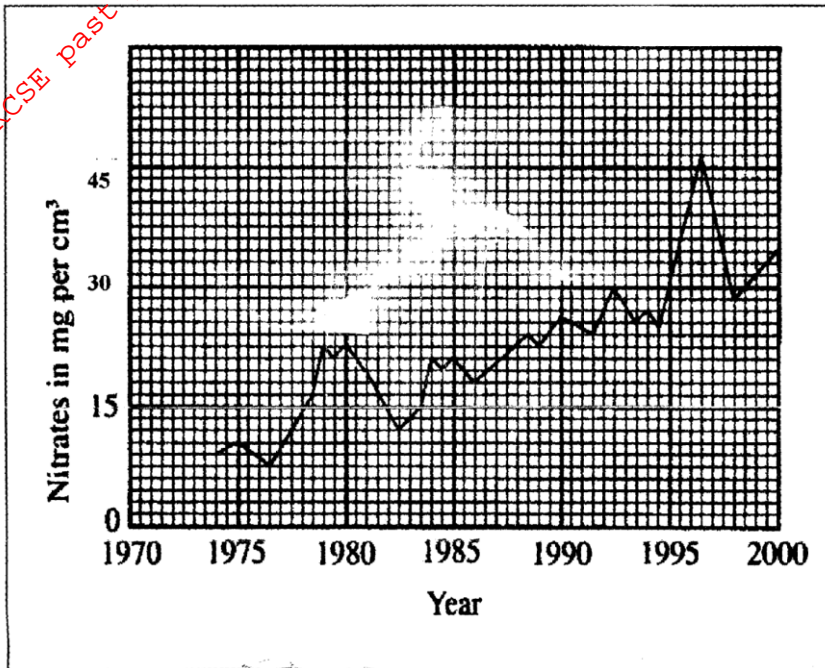
ii).....

2. State the difference between photosynthesis and chemosynthesis. (2mks)

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.....

3. Use the graph below to answer the question that follow.



a) Calculate the difference in nitrate concentration between the highest and lowest. (1mk)

b) How can increase in nitrate concentration in the river lead to death of fish? (2mks)

c) Suggest two possible sources of nitrate that lead to the pollution in river.

4. a) What is meant by the term binomial nomenclature. (1mk)

.....

.....

b) A dog is called *Canis familiaris*. Name the taxonomic unit represented by *canis*. (1mk)

5. a) State the phylum where all members have open circulatory system. (1mk)

.....

b) Explain the advantages of closed circulatory system over open circulatory system. (2mks)

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6. The following is an equation representing a type of respiration



a) Identify the type of respiration. (1mk)

.....

b) Suggest one industrial application of the process name in (a) above. (1mk)

.....

7. State two features of leaves which enable a plant to reduce the loss of water.

i) .....

ii) .....

8. Name the cell organelles responsible for :

i) Protein synthesis

.....

ii) Destroying worn – out organelles and cells

.....

9. a) Lietego school biology student used a microscope with x40 objective lens and x5 eye piece lens which had 2mm radius. Calculate the area of the field of view in micrometers. (2mks)

b) What is the average size of the cell in micrometers (2mks)

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10. Give two functions of the exoskeleton in arthropods. (2mks)

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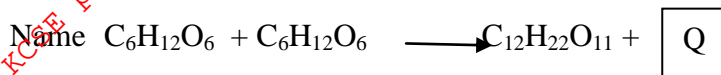
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11. a) Name the site of gaseous exchange in mammals. (1mk)

b) State one characteristics of the site named in (a) above. (1mk)

- i) .....
- ii) .....
- iii) .....

12. The chemical equation below represents a physiological process that takes in living organisms



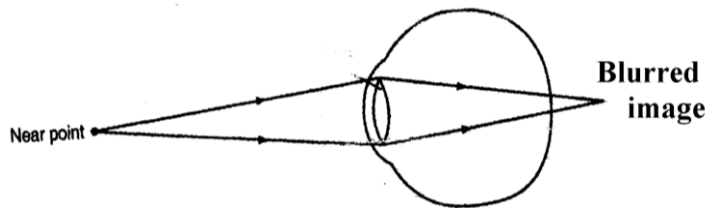
i) the process R (2mks)

ii) substance Q

13. a) Distinguish between homologous and analogous structures in evolution (2mks)

b) Give an example of a vestigial structure in human beings. (1mk)

14. The illustration below represents an eye defect.



a) Name the eye defect (1mk)

b) How can the defect be corrected? (1mk)

15. Name two classes of phylum arthropoda with cephalothor.

- i) .....
- ii) .....

iii) .....

16. State three roles of placenta during pregnancy. (3mks)

i) .....

ii) .....

iii) .....

17. Name the part of an ovule that develops into each of the following parts of a seed after fertilization. (2mks)

i) **Testa**  
.....

ii) **Endosperm**  
.....

18. Explain how the following tissues are adapted to provide mechanical support in plants

a) Collenchyma (2mks)

.....  
.....

b) Sclerenchyma  
.....  
.....

19. Two equal strips A and B were from a potato whose cell was 30% of sugar. The strip A was placed in a solution of 10% sugar concentration while strip B was placed in 50% sugar Concentration

a) What change was expected in strips A and B? (2mks)

A  
.....

B.....

b) Account for the change in strip A. (2mks)

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.....

20. When shoots of young plants were exposed to unidirectional source of light, they bend towards light.

a) Name the type of response exhibited by the young shoots. (1mk)

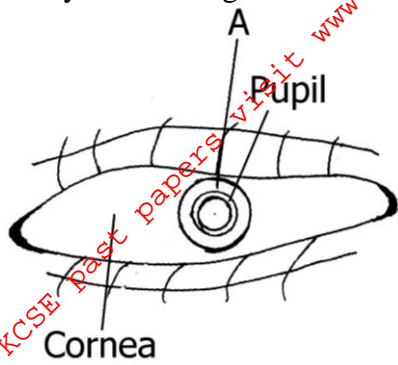
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b) Explain the cause of the observation above. (3mks)

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21. Study the drawing and answer the questions below.



a) Name the part labelled.A (1mk)

.....  
b) Describe the changes that occur in the structure A in dim light. (2mks)  
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.....  
.....

c) What is mean by the term accommodation with reference to the eye? (1mk)

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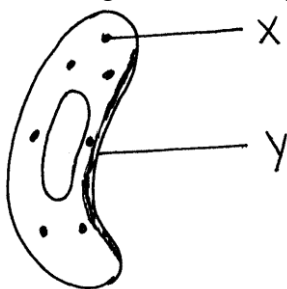
22. State any three factors that can influence reduction in the population of herbivores in a national part.

i) .....

ii) .....

iii) .....

23. The diagram below represents a cell



a) Name the parts labelled

X .....

Y .....

b) State the role of the cell (1mk)

.....  
.....

25. Name the hormone responsible for: (2mks)

i) osmoregulation

.....

ii) reabsorption of mineral salts.

.....

26. A man of blood group A (heterozygous) marries a woman of blood group O. What are the possible blood groups of their children? (2mks)

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27. The diagram below represents a bone obtained from the hind limb of a goat.



a) Identify the bone (1mk)

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b) Name the type of joint formed at the part labelled T. (1mk)

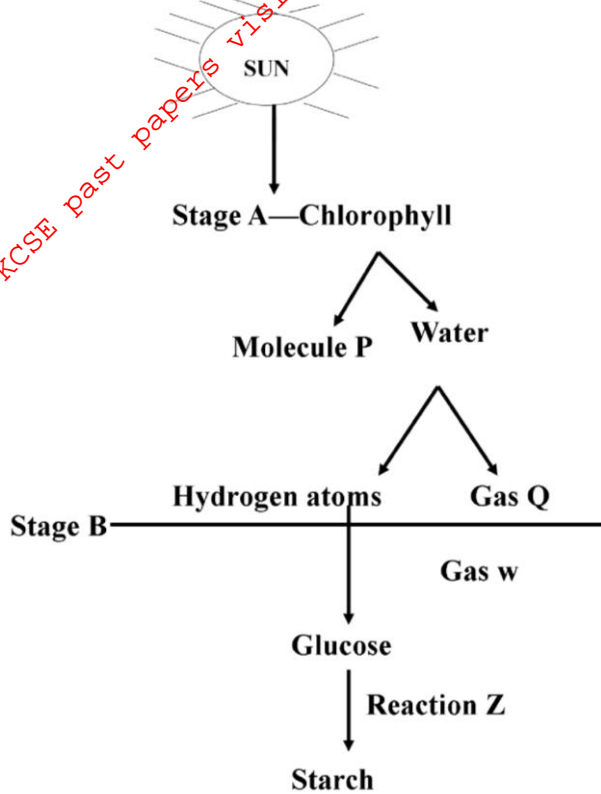
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28. During germination and early growth the dry weight of endosperm decreases while that of the embryo increases. Explain. (2mks)

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29. State one structural different between the sensory neurone and motor neurone. (1mk)

30. Below is a diagrammatic summary of the main biochemical events in photosynthesis. Study it carefully and answer the questions that follow.



a) Suggest the identify of molecule P. (1mk)

b) Name the gases represented by the letters

Q

W

c) Name the specific site for the reactions in stage B

d) Name reaction Z. (1mk)

Z

i) Give two examples of gene mutation traits in human beings. (2mks)

i)

ii)