

Name.....

Index No.....

School.....

Candidate's sign.....

Date.....

231/1
BIOLOGY
PAPER 1
July/August 2010
2 hrs

KWANZA DISTRICT JOINT EVALUATION EXAM – 2010
Kenya Certificate of Secondary Education (K.C.S.E)

231/1
BIOLOGY
PAPER 1
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INSTRUCTIONS

1. Write your name and index number in the spaces provided above
2. Sign and write the date of examination in the spaces provided above.
3. Answer ALL the Questions in this paper in the spaces provided.

FOR EXAMINER'S USE ONLY

QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
1 – 28	80	
TOTAL SCORE	80	

This paper consists of 12 printed pages. Candidates should check carefully to ascertain that all the pages are printed as indicated and no questions are missing.

1. Mango is known as MANGIFERA INDICA

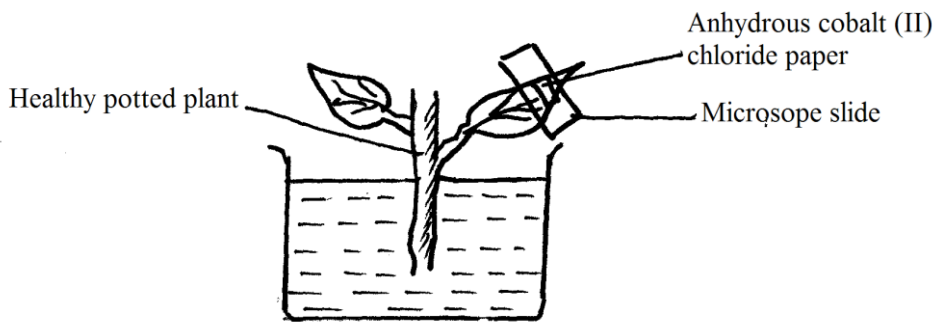
i) Write down the scientific name given above following the acceptable system of naming. (1mk)

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ii) What is the scientific naming system called. (1mk)

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2. A group of form two students set up an experiment as shown below.



a) i) Which are the expected observable results. (1mk)

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ii) Explain your answer in a(i) above. (1mk)

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b) Suggest a control for this experimental set up. (1mk)

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3. Name two substances formed in the mammalian liver. (2mks)

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4. Give the importance of leaf mosaicism in the process of photosynthesis. (1mk)

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5. a) Explain the importance of gradual release of heat energy in a cell during respiration. (1mk)

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b) Name the products of glucolysis. (2mks)

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6. a) On a bare rock, lichens are the first plants to establish themselves followed by mosses, grasses and then herbs. What name is given to this series of changes. (1mk)

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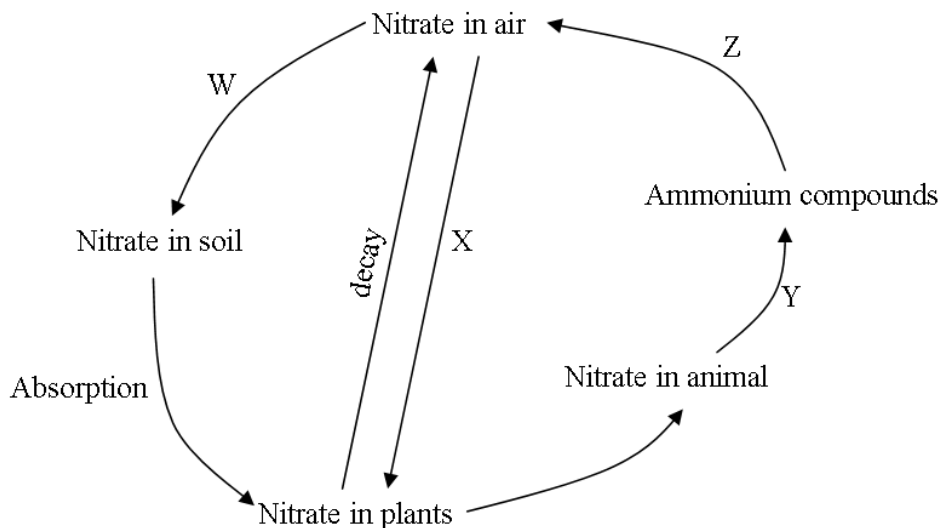
b) What makes it possible for lichens to survive on a bare rock. (2mks)

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c) State two effects of competition for food on a population of herbivores. (2mks)

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7. Study the diagram below and answer the questions that follow:



a) Name the micro – organism W. (1mk)

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.....

b) i) Name the micro – organism X. (1mk)

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ii) If micro –organism X was replaced by a biological process. State the possible biological process. (1mk)

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.....

iii) Name the biological process Y and Z. (2mks)

Y

Z

8. a) What is gene mutation? (1mk)

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b) Name the type of chromosomal mutation resulting from failure of chromosome to separate during cell division. (1mk)

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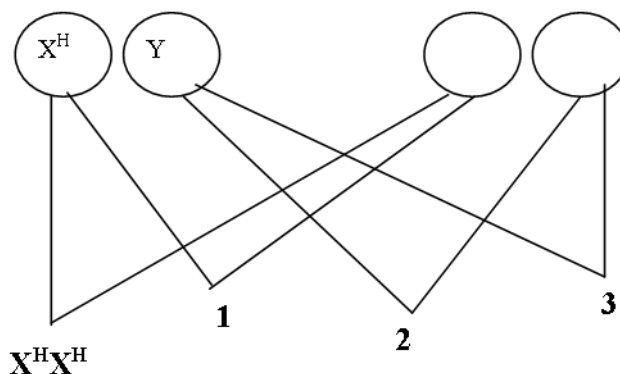
9. The genetic cross below shows the inheritance of sex linked disease in human beings

Parental phenotype : Normal Carrier

Male Female

Parental genotype : $X^H Y$

Gametes



i) What is the genotype of the mother (1mk)

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ii) Give the genotypes of the offspring marked 3 (3mks)

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iii) State the sex of the offspring marked 2. (1mk)

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10. A class 8 pupil carved initials of his name in the bark of a young tree at a height of one metre above the ground. When he was in form three the initials were found at the same height although the tree had grown two metres taller. Explain this observation. (2mks)

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11. a) A man's urine gave positive reaction with Benedict's solution. Name the disease he was suffering from. (1mk)

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b) State two ways in which the symptoms of the condition in (a) above can be controlled. (2mks)

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.....

12. Name two important roles of water in the process of germination of seeds. (2mks)

- i)
- ii)

13. What is meant by the following ecological terms. (3mks)

i) Population

.....

ii) Community

.....

iii) Ecosystem

.....

14. a) Name two structures present in plant cells but absent in animal cells. (2mks)

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b) What is meant by

i) Crenation

(1mk)

.....

ii) Haemolysis

(1mk)

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15. Name the organelles that are in abundance in:-

a) White blood cells.

(1mk)

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b) Skeletal muscles.

(1mk)

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c) Involved in osmoregulation in amoeba.

(1mk)

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16. a) Explain the Lamarckian theory of evolution.

(2mks)

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b) Give two examples of vestigial organs in man. (2mks)

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17. During the schools sports day, a student participated in a hundred metres race.

a) State three factors of the internal environment that changed. (3mks)

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b) Name the substance that accumulated in the muscles. (1mk)

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18. a) Define respiration quotient . (1mk)

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b) What is meant by respiration quotient being less than one. (1mk)

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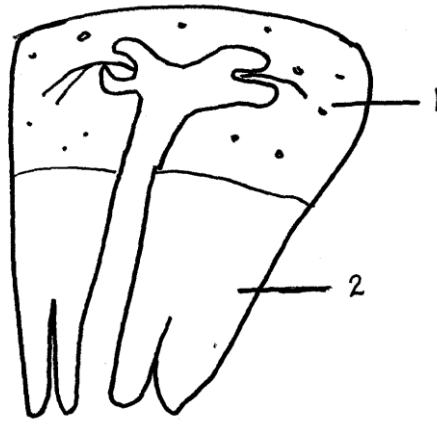
19. What is main difference between enzyme and other catalysts. (1mk)

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20. Why are undigested remains not called excretory products. (1mk)

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21. The diagram shows a section through part of the mammalian kidney.



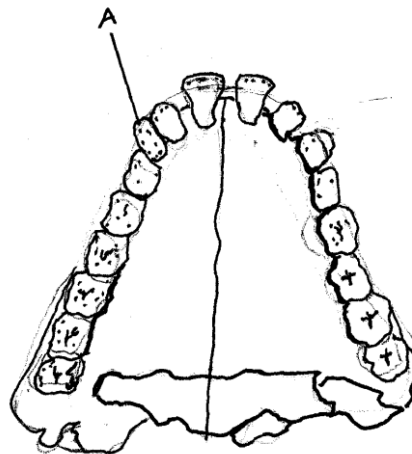
a) Name the parts labelled 1 and 2. (2mks)

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b) State two ways in which nephrons of desert animals differ from those of man. (2mks)

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22. The diagram below shows the arrangement of teeth in the lower jaw of a human being.



a) Write the dental formula. (1mk)

b) From the dental formula determine the total number of teeth. (1mk)

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c) How is tooth A adapted to its functions. (1mk)

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23. Name two hormones involved in growth and development in plants. (2mks)

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24. a) Name two substances that are found in the intercellular spaces of a leaf on a hot sunny day. (2mks)

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b) Outline any two adaptations of a leaf for gaseous exchange. (2mks)

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25. a) Differentiate between essential and non-essential amino acids. (2mks)

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b) Name two constituents of food that are absorbed without digestion. (2mks)

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26. Define the following terms as used in genetics.

i) Allele. (1mk)

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ii) Back cross. (1mk)

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27. The wings of a bird and those of a housefly adapt the two organism to the aboreal habitat.

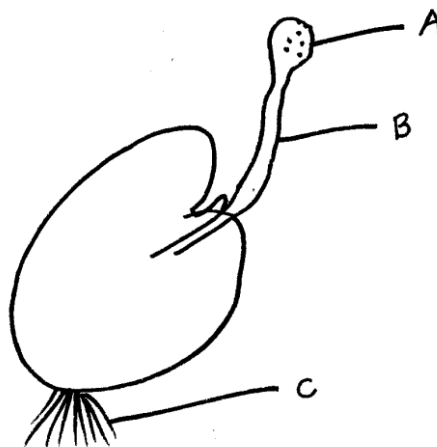
i) Give the evolutionary processes that may have given rise to these structures. (1mk)

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ii) What name is given to such structures. (1mk)

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28. Study the diagram below.



a) State the division in which the organism belong. (1mk)

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b) Name the parts labelled A and B. (2mks)

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c) What is the function of part labelled C.

(1mk)

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