NAME: ……………………………………………… INDEX NO: …………………..……………

SCHOOL…………………………………………….. DATE……………………….……………

CANDIDATE'S SIGN…………………………………….…………

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

KISUMU WEST SUB-COUNTY JOINT EXAMINATION-2014

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

BIOLOGY
PAPER 1(THEORY)

INSTRUCTIONS TO CANDIDATES:

- .*Write your* **name, index number** *and* **school** *in the spaces provided above.*
- *Sign and write the date of examination in the spaces provided*
- *Answer* **all** *the questions in the spaces provided*

FOR   EXAMINER'S USE ONLY

Question	Maximum score	Candidate's score
1-29	80	

This paper consists of 8 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing.

1. Name the branch of Biology that involves the study of: (2mrks)

    a) Organisms for the sake of classifying them.

    ....

    b) Microscopic organisms.

    …………………………………………………………………………………………………

2. The diagram below represents a plant

    a) Name the division to which the plant belongs.   (1mrk)

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    b) Give **three** reasons for your answer in (a) above.   (3mrks)

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3. State **three** parameters that can be used to estimate growth in seedlings.   (3mrks)

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4. Equal amounts of crushed Irish potato was placed in equal volumes of hydrogen peroxide solution at indicated pH. The volume of the gas produced was measured and recorded as shown in the table below.
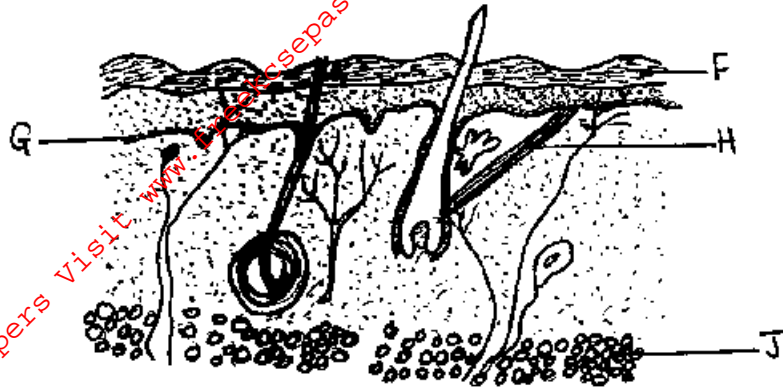
pH	4.0	7.0	9.0
Volume of gas (cm^3)	2.7	5.7	7.7

    (a) Name the gas that was produced.   (1mrk)

    ……..

    (b)Account for the difference in the volume of the gas produced in pH 4.0 and pH 9.0   (2mrks)

    …….

    ……………………………………………….……..…………………………………………………

5.   The diagram below shows a longitudinal section of mammalian skin.

a) Name the parts labelled **F** and **G.**   (2mrks)

   F…………………………………………………………………

   G…………………………………………………………………

 b) State **one** function of each of the parts labelled **H** and **J**   (2mrks)

   H …………………………………………………………………

   J …………………………………………………………………

6.   What are the names of modified leaves enclosing bougainvillea flowers whose function is to attract

   insect pollinators?   (1mrk)

   …………………………………………………………………………………………………..

7   (a) A dog weighing 15.2kg requires 216kJ while a mouse weighing 50g requires 2736 kJ per day.

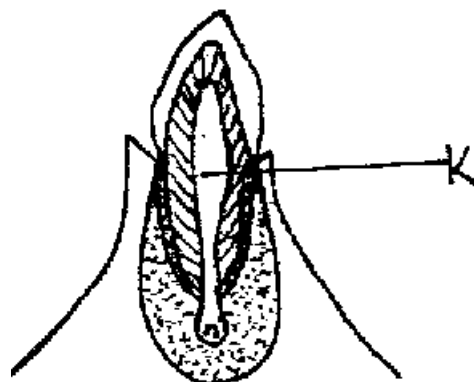   Explain.   (2mrks)

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   (b) Under what condition is lactic acid formed in human muscles?   (1mk)

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8.   The diagram below represents a section through a human tooth.

   (a) Name the type of tooth shown.   (1mk)

   …………………………………………………………………………………………………

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

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(c) State the functions of the structures found in the part labelled **K.** (2mks)

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9. (a) State Darwin's theory of natural selection. (1mk)

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(b) State **two** advantages of divergent evolution to organisms. (2mks)

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(c) What are vestigial organs? (1mk)

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10   Below is a diagram of an organelle. (2mks)
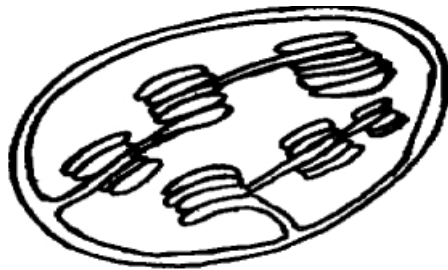
(a) State the function of the organelle drawn above. (1mk)

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(b) Name the parts of the organelle where :

(i)   Oxygen gas is produced as a by product. (1mk)

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(ii)   Carbon (IV) oxide is utilized. (1mk)

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11. (a) What is homeostasis? (1mk)

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(b) State **three** processes in humans in which homeostasis is involved. (3mks)

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12. (a) Name the type of eye defect corrected by wearing convex lens. (1mk)

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(b) State **two** functions of iris. (2mks)

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13.
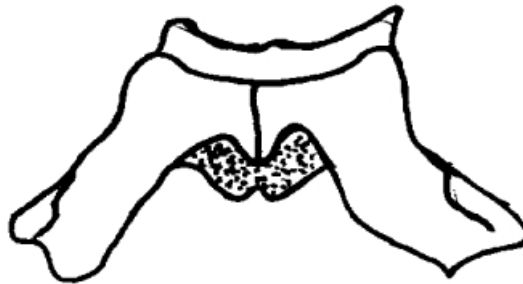
(a) Identify the bone drawn above. (1mk)

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(b) Name the types of joint formed by the bone above. (2mks)

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14. Name the parts of the human ear that perform the following functions.

    (a) Amplifies sound vibrations. (1mk)

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    (b) Balances air pressure between inner and outer ear. 1mk

………………………..…………………………………………………………………………..

    (c) Contains hair cells to generate hearing impulses. (1mk)

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15. (a) Why is the wall of the left ventricle thicker than that of the right ventricle. (1mk)

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(b) State **three** adaptations of xylem to water transportation (3mks)

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16   Use the graph below to answer the following questions.
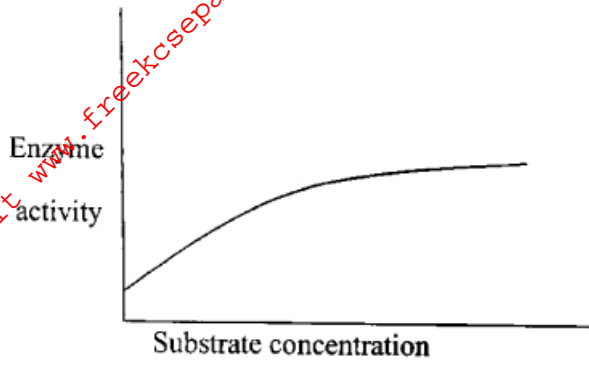
(a) Why does the activity of the enzyme become constant after a while?   (1mk)

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(b) State how the activity of the enzyme may be increased in (a) above.   (1mk)

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17.   Describe capture - recapture method of estimating population.   (3mks)

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18   What is meant by self sterility with reference to flowers?   (1mk)

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19   Why do plants lack complex excretory system?   (3mks)

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……………………………………………………………..…..…………………………………………….

20   How do herbaceous plants achieve support? Give **two.**   (2mks)

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21. In a certain species of pea plants *(Pisum sativum)* the gene for yellow flowers is dominant over the gene for white flowers.

(a) Write the possible genotypes of a yellow flowered pea plant. (2mks)

(Use **R** for yellow flower gene)

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(b) State how a yellow flowered pea plant can be confirmed to be heterozygous. (1mrk)

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22. State the importance of active transport in living organisms. (3mrks)

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23. Why does carboxyhaemoglobin lead to death? (2mrks)

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24. (a) Name **two** gaseous exchange sites in higher plants. (2mrks)

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(b) State the difference between the amount of oxygen and carbon (IV) oxide that enters and

leaves the human lungs (2mrks)

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25. What causes apical dominance? (1mrk)

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26. The diagram below shows a simplified nitrogen cycle
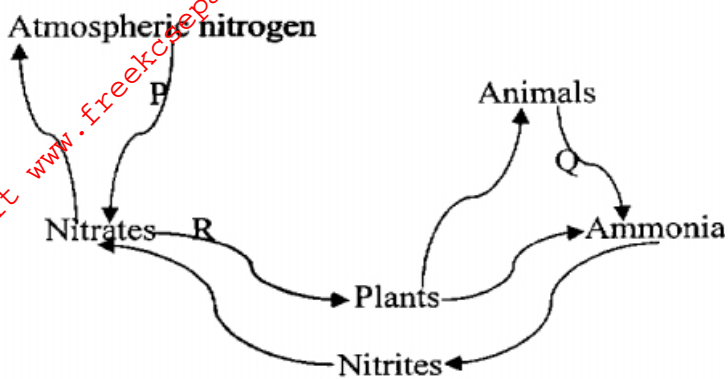
(a) Name the processes labelled **P, Q** and **R**   (3mrks)

    P...……………………………………………………………………………………………

    Q……………………………………………………………………………………………

    R…………………………………………………………………………………………….

27. State the biological importance of geotropism.   (2mrks)
    ……………………………………………………………………………………………………….
    ……………………………………………………..…………………………………………………….

28. Describe the type of chromosomal mutation known as translocation   (1mrk)
    ……………………………………………………………………………………………………….
    …………………………………………………..…..…………………………………………………….
    ……………………………………………………………………………………………………….

29. State **two** functions of ovaries in humans.   (2mrks)
    ……………………………………………………………………………………………………….
    …………………………………………………..…..…………………………………………………….