

Name: Index no
School: Candidate's sign
Date:

231/1
BIOLOGY
PAPER 1
JULY/AUGUST 2011
TIME 2 HOURS

NDHIWA DISTRICT JOINT EVALUATION TEST

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

**Biology
Paper 1**

INSTRUCTIONS TO CANDIDATES:

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

For Examiner's Use Only:

QUESTIONS	MAXIMUM SCORE	CANDIDATES 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. Why is the movement of energy in an ecosystem described as a flow and not as a cycle. (1mk)

2. Describe what happens during the light stage of photosynthesis. (3mks)

3. Apart from hearing state another function of the human ear. (1mk)

4. (a) What is the meaning of the terms (2mks)

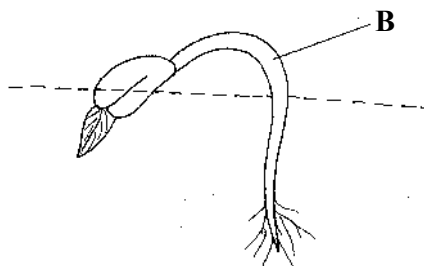
(i) Homeostasis

(ii) Osmoregulation

b) Name the hormones involved in regulation of glucose level in the blood (2mks)

5. State **two** advantages of natural selection to organisms (2mks)

6. The diagram shows a germinating seedling



(a) Name the part labeled B. (1mk)

(b) State the functions of the part B (2mks)

7. A flower was found to have the following characteristics:

- Inconspicuous petal
- Long feathery stigma
- Small light pollen grains.

(a) What is the likely agent of pollination of the flower?. (1mk)

(b) What is the significance of the long feathery stigma in the flower (1mk)

8. (a) What would happen to a cell if its nucleus was removed. (2mks)

.....
.....

(c) Give the function of nucleolus. (1mk)

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9. State **three** ways in which a respiratory surface is adapted to its function. (3mks)

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10. State the functions of the following fins of a bony fish

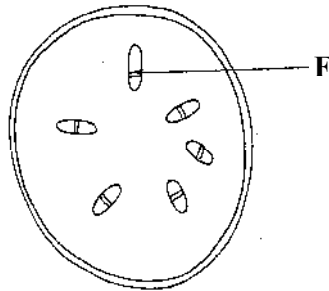
(i) Dorsal (2mks)

.....

(ii) Pelvic and pectoral fins (2mks)

.....

11. The diagram below represent a section through a plant organ.



(a) (i) Name the class of the plants from which the section was obtained?. (1mk)

.....

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

.....

(b) State the function of the part Marked F. (1mk)

.....

12. (a) Pregnancy continues if the ovary of the mother is removed after 4 months. Explain?. (2mks)

.....
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(b) What is the function of the following structures in the human reproductive organs.

(i) Fallopian tubes. (1mk)

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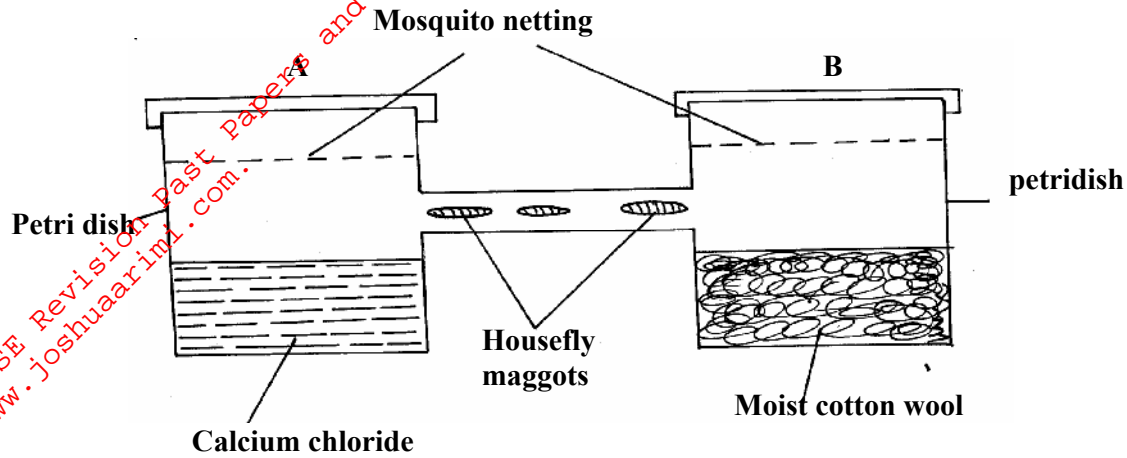
(ii) Epididymis. (1mk)

.....

(iii) Scrotal sac. (1mk)

.....

13. The following experiment has set up in a chamber made from two connected petridishes. Housefly maggots were introduced at the centre of the chamber. So that the maggot could move to either petridish A or B as shown below



- (a) Name the type of response being investigated in the set up. (1mk)

.....

- (b) State the survival value of the response named in (a) above (1mk)

.....

- (c) Give the role of calcium chloride in the experiment above. (1mk)

.....

14. State **three** structural difference between biceps muscles and muscles of the gut. (3mks)

.....

.....

.....

15. In cattle the gene for red hair (designated R) and that of white hair (designated W) are co-dominant. When a red haired bull mated with a white haired heifer a roan calf was obtained in F1.

- (i) Give the genotypes of the F1 offsprings. (3mks)

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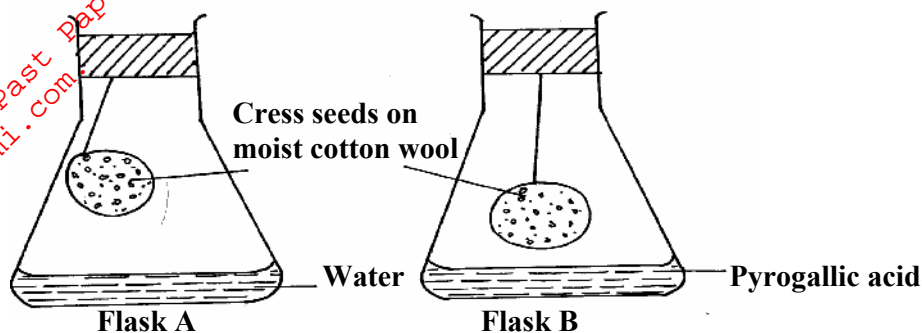
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Work out the phenotypic ration when the F1 are selfed. (3mks)

16. Name **two** processes that bring about translocation of manufacturing food. (2mks)

17. The diagram below represent an experiment to test the hypothesis that seeds need oxygen in order to germinate.



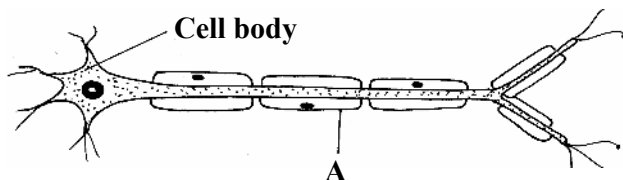
Account for the likely observations made in:

- (i) Flask A (1mk)
- (ii) Flask B (1mk)
- (iii) Which of the **two** flasks represents the control and what is its purpose (1mk)

What difference would you expect to see between pea seedlings grown for 10 days in total darkness and pea seedlings grown in the light for the same period of time. (1mk)

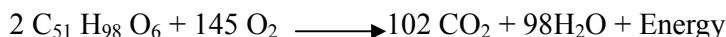
18. State any **two** evidences of organic evolution? (2mks)

19. The diagram below represent a nerve cell



- (a) Identify the cell. (1mrk)
- (b) Using an arrow on the diagram indicate the direction of impulse movement on drawing. (1mk)
- (c) Name the part marked A. (1mk)

20. Calculate the respiratory Quotient (RQ) from the equation below:



Show your workings (2mks)

(b) Identify the substrate being respired in the above equation. (1mk)

21. Name the **three** main sites in plants through which gaseous exchange take place. (3mks)

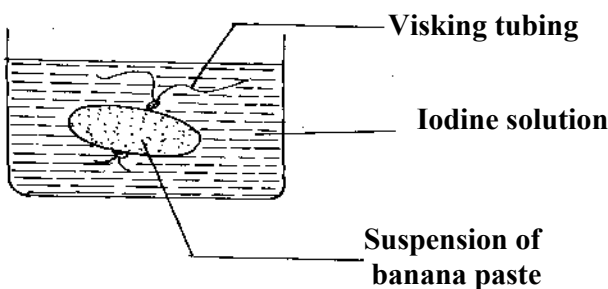
22. The following is a dental formular of a certain mammal.

i $\frac{0}{3}$ C $\frac{0}{1}$ Pm $\frac{3}{3}$ M $\frac{3}{3}$

(a) State the likely mode of feeding for the mammal. (1mk)

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

23. In an investigation raw banana was peeled, mashed into a paste and was treated as shown in the set up below.



(a) Name the physiological process being investigated. (1mk)

(b) State the expected colour of the solutions inside and outside the risking tubing after 30 minutes. (2mks)

Inside

Outside

(c) Explain the observation made in (b) above. (2mks)

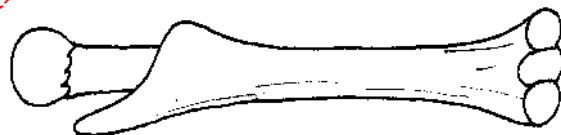
24. State the functions of the following parts of a light microscope (2mks)

- (i) Diaphragm.....
Objective tens.....

25. Give **two** reasons why studying biology is important. (2mks)

.....
.....

26. The diagram below represent a mammalian bone



(a) Name the bone (1mk)

.....

(b) Name the type of the joint formed by the bone at its anterior with the adjacent bone. (1mk)

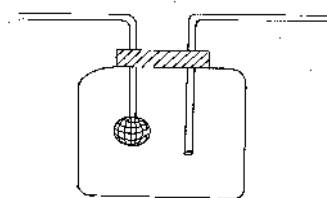
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27. What do you understand by the following terms as used in cell division:

(a) Karyokinesis..... (1mk)

(b) Cytokinesis..... (1mk)

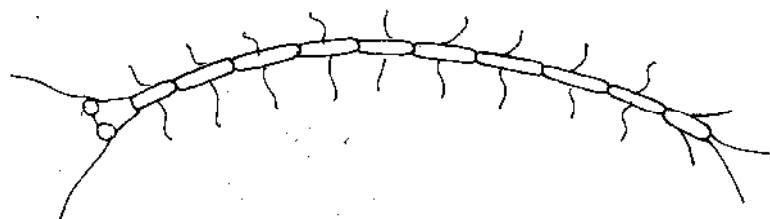
28. The diagram below shows an apparatus used in biological study.



(a) Name the apparatus shown above.....(1mk)

(b) State the function of the apparatus.....(1mk)

29. Study the diagram below



(a) Identify the class to which the organism belong. (1mk)

.....

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

(1mk)

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