NYAMBARIA HIGH SCHOOL

END OF YEAR EXAMS

Paving Way For Kenya Certificate of Secondary Education Success

Name …….. Admission no…….

Candidate's Signature…… Date…….

FORM 3

BIOLOGY

PAPER 1

TIME: 2Hours

INSTRUCTIONS:

- All Questions are Compulsory
- Give Neat and precise answers
- Wrong Spellings Will be Penalised

For examiner's use only

Question	Maximum score	Candidates score
1-30	80	

1. a) State a function of the Red Blood Cells **(2mks)**

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b) Name the enzyme important in the transport role of the Erythrocytes **(1mk)**

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2. Give **two** ways atmospheric Nitrogen is converted into Nitrates **(2mks)**

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3. Explain why primary productivity declines in aquatic ecosystems **(1mk)**

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4. A student was viewing a slide preparation of an onion cell under high power of a microscope. The features of the cell were blurred (not clear).

i) Which part of the microscope should be used to obtain a sharper image? **(1mrk)**

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ii) Give the formula used to calculate magnification in a light microscope. **(1mrk)**

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5. State two ways by which White Blood Cells undertake defence of the body against infections **(2mks)**

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6. The diagram below illustrates an experiment carried out on a growing plant.



Beginning of experiment **End of experiment**

(a) What was the aim of the experiment? **(1mark)**

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(b). Explain the results at part labelled X. **(2 marks)**

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7. A certain plant was found to have the following features:- parallel venation in leaves, sheath like petiole and flower parts in multiples of three.

i) Name the class to which the plant belongs. **(1mark)**

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ii) Suggest the expected arrangement of vascular bundles in its stem. **(1mark)**

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8. Identify the mode of nutrition in fungi with the following structures **(2mks)**

i) Rhizoids: ……..

ii) Haustoria: ……

9. Sugar was detected in the urine of a patient during a laboratory test.

a) Name the test reagent used in the above test. **(1mark)**

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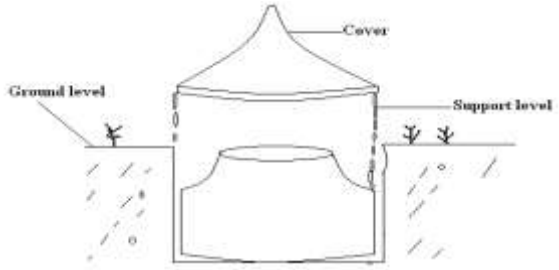
(b)Which hormone was likely to have been deficient? **(1mark)**

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(c)What name is given to the above condition? **(1mark)**

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10. Study the diagram below and answer questions that follow.



i) What is the name given to the apparatus shown above. **(1mark)**

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ii) What is its use in Biological studies. **(1mark)**

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11. Name **two** physiological adaptations that enable homoiotherms to adjust body temperature on a cold day. **(2 marks)**

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12. Explain why the carrying capacity of wild animals is higher than that for cattle in a given piece of land. **(2mks)**

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13. Give **two** reasons why accumulation of lactic acid during vigorous exercise leads to an increase in heat beat. **(2 marks)**

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14. How does hot water of about 35°c act as a pollutant when it is discharged from industries into rivers? **(2mks)**

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15. a) what the advantages of desert animals excreting their nitrogenous waste in form of urea and not ammonia **(2mks)**

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b) Explain **two** modifications on the kidney nephron of desert mammals **(2mks)**

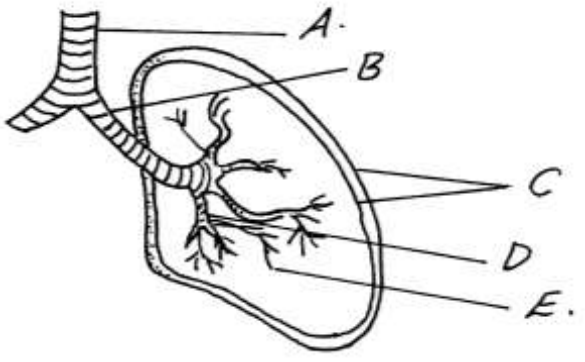
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16. Study the diagram below



a) Identify parts: **(2mks)**

B ……

E……

b) Give a function of the fluid within part labelled C **(1mk)**

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c) State **two** adaptations of part labelled A **(2mks)**

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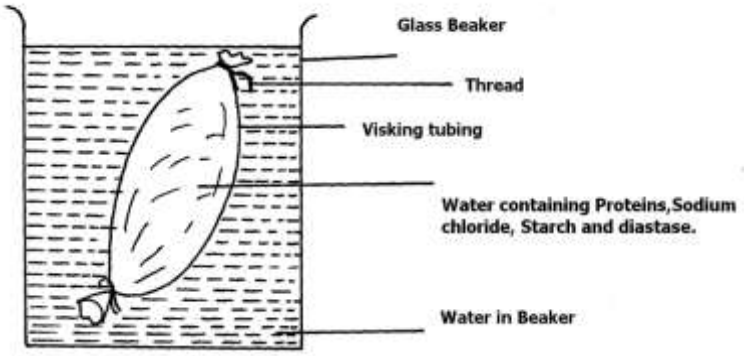
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17. Describe the events that occur in the stroma of a chloroplast. **(2mks)**

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18. Study the following diagram which was maintained at 37°C



Explain the results that would occur in the experiment after 30 minutes **(3mks)**

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19. State **two** features of the ileum that increases its surface to its function **(2mks)**

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20. State the most suitable biological tool for collecting a moth from a coffee farm. **(1mk)**

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21. A student observed an organelle using an electron microscope at magnification of X6000. It had a diameter of 2 millimeters .Calculate the actual diameter of the organelle in micrometers. **(2mks)**

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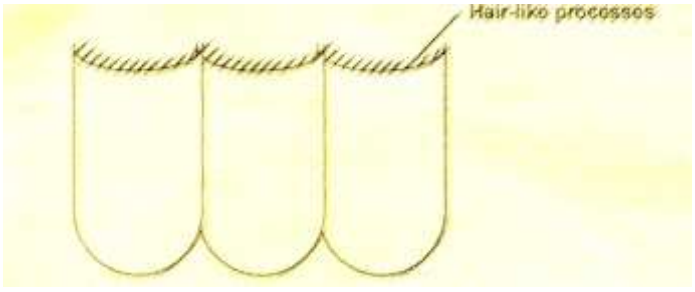
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1. The diagram below shows a type of epithelial tissue.



a) State the possible function of the hair-like processes on the tissue **(1mark)**

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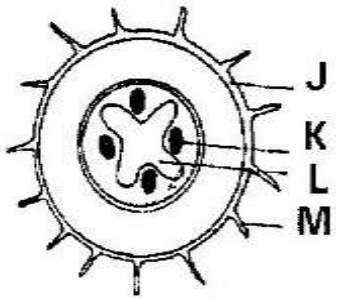
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b) Name **two** mammalian organs where this type of epithelium is found. **(2marks)**

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22. The diagram below represents a transverse section of a plant organ. Study it and answer the question that follows.



a) Name the parts labelled **2mks)**

K ……

M ……

b) Give a function of part L **(1mk)**

……

c) With a reason identify the organ from which the above section was obtained

Organ: …….

Reason …….

……..…**(2mks)**

23. State **two** digestive enzymes secreted in their inactive forms. **(2mks)**

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24. The table below represents certain aspect of the circulatory system in certain animals. Fill in the missing spaces. **(3 marks)**

Heart	No. of atrium	No. of ventricle	Type of circulation
A	2	2	
B	2	11	
C	1	1	

25. Name the tissue that carry out the following function in mammals.

a. Binds and supports various organs in the body **(1 mark)**

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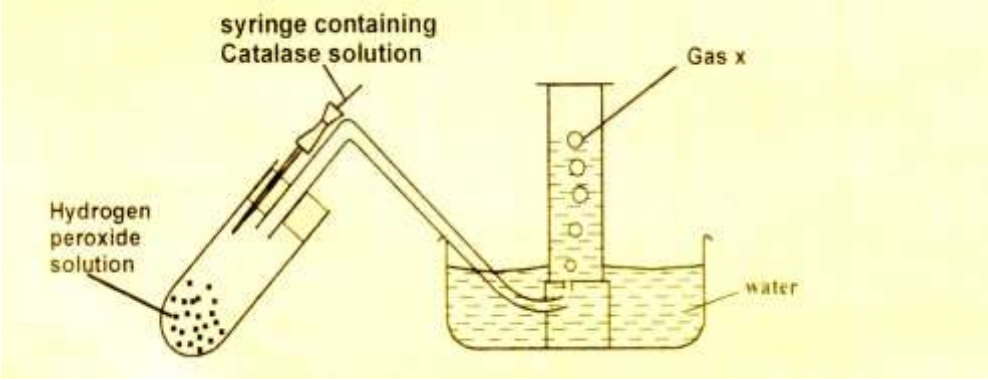
b. Transport oxygen throughout the body **(1 mark)**

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c. Contract and relax to bring about movement **(1 mark)**

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26. The apparatus shown below was set up by form two students in a certain school.



a) Name the gas X **(1 mark)**

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b) Write a word equation for the reaction which produces the gas. **(I mark)**

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c) Where in the body does this type of reaction occur **(1 mark)**

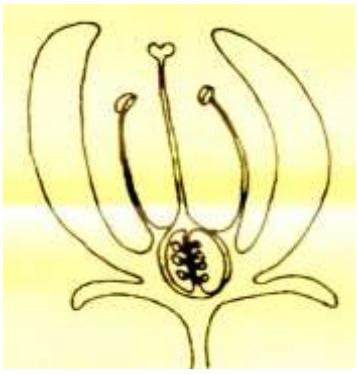
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d) Describe how to confirm the identity of gas X in the laboratory **(1mk)**

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27. Below is a simplified diagram of a flower



i. Suggest its agent of pollination **(1 mark)**

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ii. Name the type of ovary shown above **(1 mark)**

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iii. Explain the observable mechanism that will hinder self-pollination and fertilization in the above flower **(1 mark)**

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28. Name the **three** processes that takes place in the liver to bring about difference in composition of blood in hepatic portal vein and hepatic vein. **(3 marks)**

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29. The scientific name of human beings is HOMO Sapiens.

(a) State the mistakes in the scientific name. **(2 marks)**

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(b) Write the name in the correct manner following the principals of binomial nomenclature. **(1 mark)**

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30. In an experiment to estimate the population size of mosquitoes in Shikotu village, Kenya Medical Researchers caught 400 mosquitoes which they marked and released. After 24 hours, 200 mosquitoes were caught out of which 40 had no marks.

(a) (i) Suggest the possible instrument that was used for capturing the insects **(1 mk)**

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(ii) Estimate the population size of mosquitoes in the village **(2 marks)**

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(b) What is the role of light to a lion in the ecosystem? **(1mk)**

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