Name……..**Index No**……..

ADM No……

231/1
BIOLOGY
THEORY
Paper 1
July/August 2013
2 Hours

Student's Signature……

Date ……

Subukia District Joint Examination

Kenya Certificate of Secondary Examination

231/1
BIOLOGY
THEORY
Paper 1
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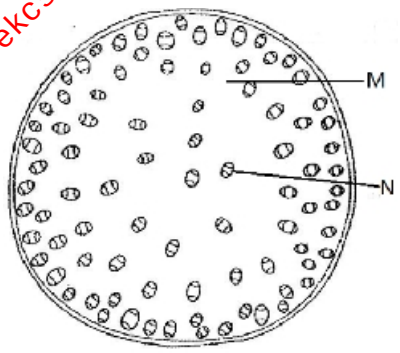
INSTRUCTIONS TO CANDIDATES

1. *Write your **name, index** and **ADM Numbers** in the spaces provided above.*
2. *Sign and write date of examination in the spaces provided above.*
3. *Answer ALL questions in the spaces provided.*
4. *All workings **MUST** be clearly shown where necessary.*
5. *This paper consists of **11 (Eleven)** Printed pages.*
6. *Candidates should check the question paper to ensure that all the papers are printed as indicated and no questions are missing*

For Examiners use only.

Question	Maximum Score	Candidates Score
1 – 29	80	

1. The diagram below represents a cross-section of the stem of a certain plant.



(a) Name the structures labeled **M** and **N.** *(2 mks)*

M

……

N

……

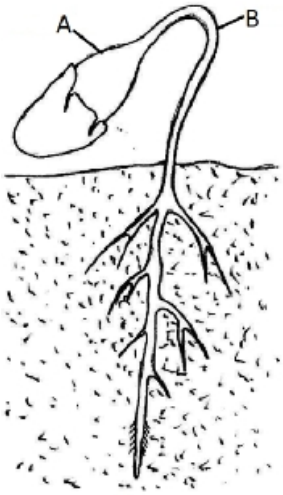
(b) State the class to which the plant above belongs. *(1 mk)*

……

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

……

2. The diagram below represents a germinating seedling.



(a) Name the parts labeled **B**. *(1 mk)*

……

(b) Name the type of germination represented by the diagram above. *(1 mk)*

……

(c) Give ***two*** functions of the part labeled **A**. *(2 mks)*

……

……

3. The diagram below shows the structure of an organelle that is involved in aerobic respiration.

(a) State the function of the organelle. *(1 mk)*

……

(b) Outline ***two*** adaptations of the above organelle. *(2 mks)*

……

……

4. Name an instrument used to measure the following environmental factors:

(a) Light penetration in water. *(1 mk)*

……

(b) Strength and direction of wind at the same time. *(1 mk)*

……

5. Distinguish between continuous and discontinuous variation. *(2 mks)*

……

6. Name a hormone that is responsible for the following processes in arthropods:

(a) Moulting. *(1 mk)*

……

(b) Formation of cuticle. *(1 mk)*

……

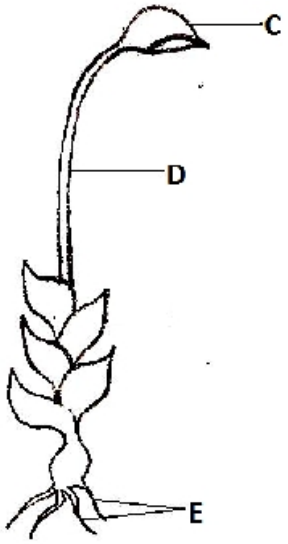
7. (a) Name a hormone involved in ionic balance in the human body. *(1 mk)*

……

(a) Njoka was found to be passing out large amount of urine which also had a lot of glucose in it. Name the disease he was likely to be suffering from. *(1 mk)*

……

8. The diagram below represents a certain organism.



(a) Name the division to which the organism belongs. *(1 mk)*

……

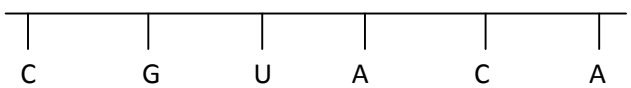
(b) Give ***two*** functions of the part labeled E. *(2 mks)*

……

……

……

9. The diagram below represents a section of a certain strand.



(a) Identify the type of strand represented above. *(1 mk)*

……

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

……

(c) Write down the base sequence of the complementary strand from which the section was obtained. *(1 mk)*

……

……

10. State ***two*** differences between class chilopoda and class diplopoda. *(2 mks)*

……

……

……

……

11. Give ***two*** reasons why Mendel chose to use garden pea plant in his experiment. *(2 mks)*

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……

12. The diagram below represents a stage cell division.

(a) Identify the stage of cell division represented above. *(1 mk)*

……

(b) State ***two*** differences between meiosis and mitosis. *(2 mks)*

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13. Peter was using a light microscope to view onion cells with lens combination of eye piece lens X10 and objective lens X20.

(a) Calculate the total magnification. *(1 mk)*

……

……

(b) If he changed the objective lens magnification to X40, would the cells appear bigger or smaller? Explain. *(2 mks)*

……

……

14. A sheep was found to be heavily infested with tapeworms.

(a) Write down a food chain to represent energy flow in the above relationship. *(2 mks)*

……

……

(b) What is the trophic level of tapeworms in the above relationship? *(1 mk)*

……

15. State ***two*** characteristics of the cell membrane. *(2 mks)*

……

……

16. State the mode of asexual reproduction exhibited by the following organisms:

(a) Yeast. *(1 mk)*

……

(b) Mushroom. *(1 mk)*

……

(c) Name the causal organism that cause the following diseases:

i. Amoebiasis. *(1 mk)*

……

ii. Syphilis. *(1 mk)*

.....

17. Which term is given to the condition of;

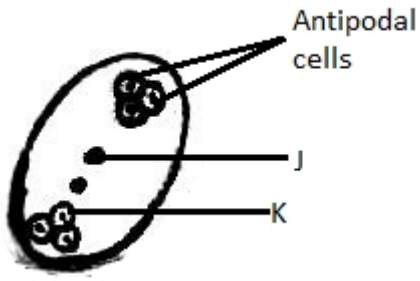
(a) A plant cell when the protoplasm is pressing outwards on the cell wall on the absorption of water by osmosis. *(1 mk)*

.....

(b) Partial collapse of cell due to water loss by osmosis. *(1 mk)*

.....

18. The diagram below represents an embryo sac.



a) Name the parts labeled **J** and **K**. *(2 mks)*

J

.....

K

.....

b) Differentiate between protandry and protogyny. *(2 mks)*

.....

.....

.....

.....

19. Which organelle would be abundant in:

(a) Skeletal muscle. *(1 mk)*

.....

(b) Palisade mesophyll. *(2 mks)*

……

20. What is parthenocarpy? *(1 mk)*

……

……

21. State ***two*** factors that affect the rate of active transport. *(2 mks)*

……

……

22. Differentiate between interspecific and intraspecific competition. *(2 mks)*

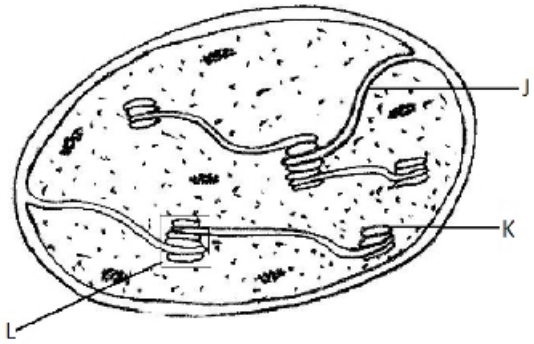
……

……

……

……

23. Below is a structure found in plants.



a) Name the organelle. *(1 mk)*

……

b) What is the role of the organelle you have named in (a) above. *(1 mk)*

……

c) Name the parts labeled **J** and **L**. *(3 mks)*

J

……

L

.....

24. Name ***two*** forces involved in the movement of water and mineral salts. *(2 mks)*

.....

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25. What characteristics of living organisms is represented by the following characteristics:

a) A cat producing kittens. *(1mk)*

.....

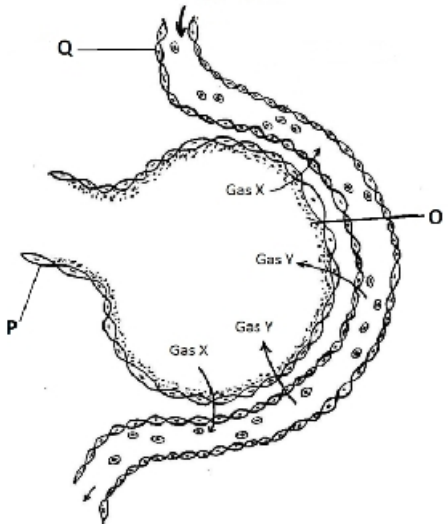
b) A girl dropping a hot pan. *(1mk)*

.....

c) The exhalation of carbon (IV) oxide. *(1mk)*

.....

26. The diagram below represents the alveolus.



(a) Identify **O, P** and **Q.** *(3 mks)*

O

.....

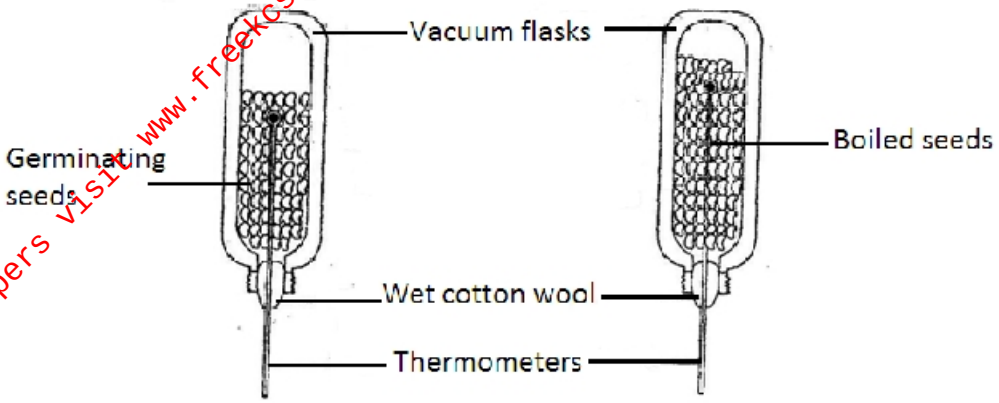
Q

.....

(b) Identify gas **Y**. *(1 mk)*

.....

27. Sigei set up the following experiment to investigate an aspect of germination.



Flask A **Flask B**

a) What was Sigei investigating? *(1 mk)*

……

b) State the purpose of the vacuum flasks used in this experiment instead of an ordinary flasks. *(1 mk)*

……

c) Give a reason why seeds in flask **B** were boiled. *(1 mk)*

……

d) After several days, account the results which would have been observed by Sigei in flask A. *(2 mk)*

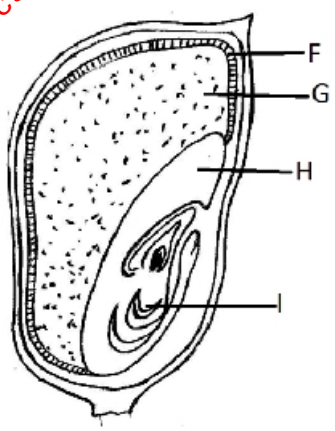
……

……

28. Besides excretion give ***one*** functions of the liver. *(1 mks)*

……

29. The diagram below represents a transverse section of a maize grain.



(a) Name the parts labeled **H** and **I**. *(2 mks)*

H

……

I

……

(b) If a drop of iodine was placed on the section, which part would stain blue-black? *(1 mk)*

……

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