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

SCHOOL:.....CANDIDAES SIGNATURE:.....

DATE:.....



231/1
BIOLOGY
PAPER 1.
THEORY
JULY/AUGUST-2014

TIME:

# KISII SOUTH DISTRICT JOINT EVALUATION EXAM-2014

*Kenya certificate of secondary education (K.C.S.E)*

231/1
BIOLOGY
PAPER 1.
THEORY
JULY/AUGUST-2014

TIME:

**Instructions to candidates.**

a) Write your name and index number in the spaces provided above.
b) Sign and write the examination date .
c) Answer all the questions in the spaces provided in the question paper.

*This paper consists12 of printed pages*
*Candidates should check to ascertain that all pages are printed as indicated and that no question is missing.*

1. State ways by which synaptic transmission can be stopped. (2mks)

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2. State two advantages which the endothermic (homoethermic) have over those that are exothermic (poikilothermic). (2mks)

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3. a) State one function of red blood cells. (1mk)

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b) Give two structural difference between red blood cells and white blood cells. (2mks)

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4. Hairs and leaves of sundew, an insectivorous plant curl around and trap insects when they land on the plant.

a) Identify the response shown sundew plants (1mk)

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b) Explain the biological importance of the response in (a) above. (2mks)

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c) Name any one type of neurons. (1mk)

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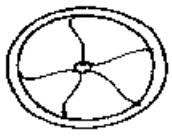
5. The diagram below gives an external view of the structure of the human eye observed outdoor at midday and midnight.



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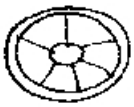

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a) Which diagram represents the eye as observed during the day? (1mk)

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

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6. A student viewed and drew a plant cell of a diameter 4mm using a light microscope whose eye piece lens was marked x1 and objective lens marked x5. How many cells were linearly arranged along the microscope's field of view whose diameter was 8mm .

( show your working ) (3mks)

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7. Identify the nucleic and whose base sequence is shown below.

G-A-C-U-A-G-A-C-G

i) Identify the type of nucleic acid as shown below (1mk)

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

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iii) Write the base sequence of the DNA strand shown above (1mk)

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8. State the function of the following parts of a microscope (3mks)

i) Nose piece.

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ii) Condenser.

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iii) Diaphragm.

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9. Identify the mode of feeding of the animal whose dental formula is given below.

$i\frac{0}{3}, C\frac{0}{1}, Pm\frac{3}{3}, M\frac{3}{3} = 32.$

a) Mode of feeding (1mk)

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b) Give a reason for your answer in (a) above. (2mks)

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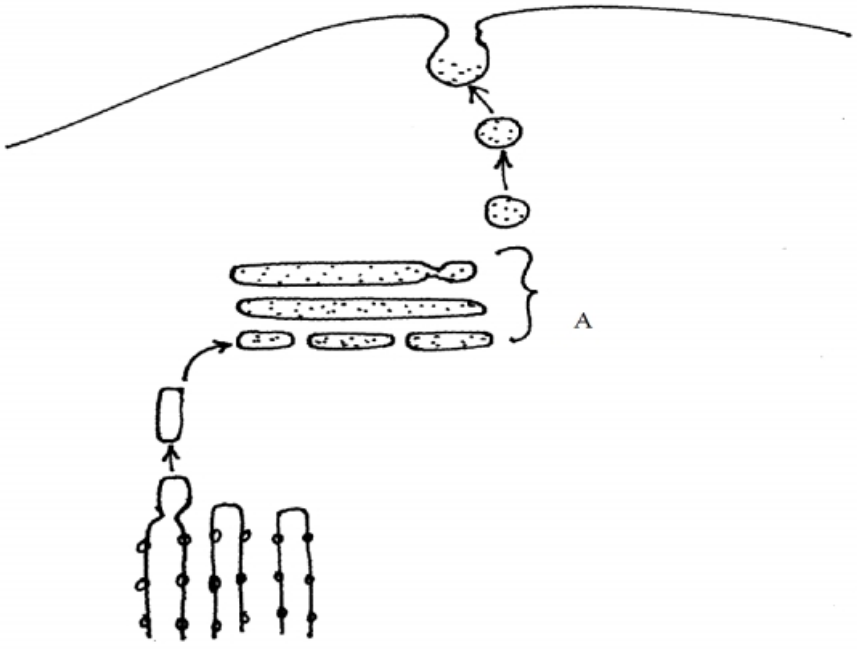
10. Study the diagram below and use it to answer the questions.




a) Identify the organelle marked A. (1mk)

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b) Give three functions of the organelle named in (a) above (3mks)

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11. It was found that during germination of pea seeds 9.3cm$^3$ of carbon (iv) oxide was produced while 9.1cm$^3$ of oxygen was used up.

a) Calculate the respiratory quotient (RQ) of the reaction taking place. (2mks)

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b) Identify the type of food substance being metabolized. (1mk)

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12. Explain why Lamarck's theory of evolution is not accepted by biologists today. (2mks)

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13. Give three reasons why plants lack complex excretory organs like those of animals. (3mks)

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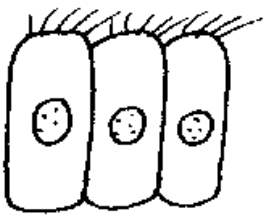
14. The diagram below shows a type of epithelial tissue.



i) What is the name of the hair-like process? (1mk)

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ii) What is the function of the hair-like process. (1mk)

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b) Name one part in the human body where the hair-like process are found. (1mk)

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15. In an attempt to estimate the number of weaver birds in a small woodland 435 were captured , marked and released. Three days later , 620 were captured 75 of which were marked.

a) What is the name of the sampling method described above. (1mk)

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b) Calculate the approximate size of the weaver bird population in the woodland. (2mks)

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c) Give one disadvantage of this method. (1mk)

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16. Give an example of ball and socket joint. (1mk)

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17. Name two types of strengthening tissues in plants. (2mks)

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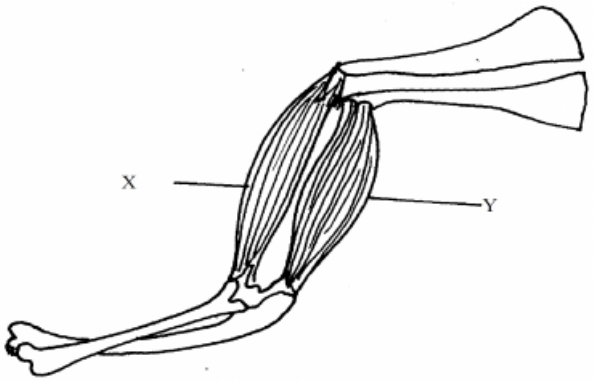
18. Study the diagram below, and answer the questions below.



a) Name the muscles labelled X and Y. (2mks)

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b) What happens to each muscle as the arm is straightened? (2mks)

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19. Nocturnal animals such as a leopard are capable of seeing fairly well at night. What two retinal adaptations have made this possible? (2mks)

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20. The table below shows stomata distribution on leaves A and B and their surface area. Use the information to answer the questions that follow.

| | Leaf A | B |
|---|---|---|
| Number of stomata | Upper surface 25 | 5 |
| | Lower surface 0 | 20 |
| Surface area. | $30cm^3$ | $19cm^3$ |

b) Identify with reasons the habitats of the plant from which the leaves were obtained (4mks)

Leaf A Habitat.....

Reasons.....

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Leaf B Habitat.....

Reasons.....

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21. A tall bean plant crossed with a dwarf one produces offspring of which about half are tall and other are dwarf . what are the genotypes of parents? Show your working (3mks)

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22. Describe what happens during the dark stage of photosynthesis. (3mks)

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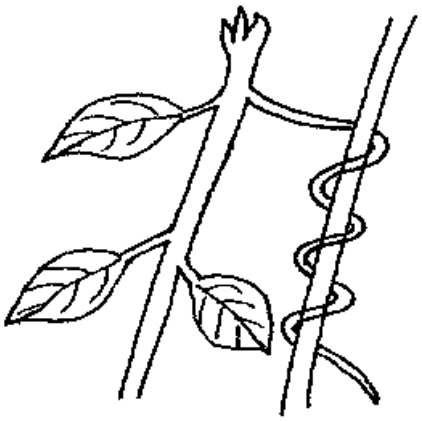
23. The response exhibited by a certain plant tendril is illustrated below.



i) Name the type of response. (1mk)

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ii) Explain how the response named in (i) above occurs . (2mks)

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24. State three adaptations of respiratory surfaces. (3mks)

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25. State the parts of the ear involved in:

a) Amplification of sound vibration (1mk)

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b) balance and posture. (1mk)

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26. Explain why the digestion of starch stops after food enters the stomach. (2mks)

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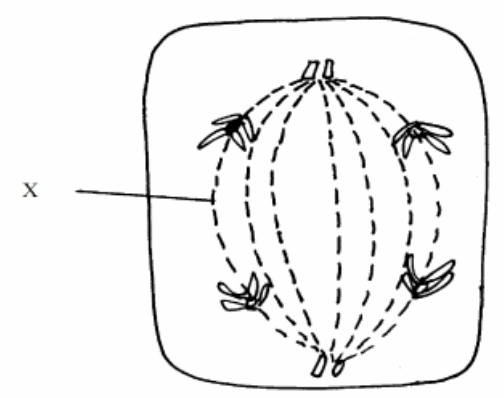
27. The diagram below represents a stage during cell division.




i) Identify the stage of cell division. (1mk)

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ii) Give two reasons for your answer (a)i) above (2mks)

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iii) Name the structure labelled M. (1mk)

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28. Bivalent synapsis, crossing over are terminologies used in cell division.

a) Name the stage of meiosis in which the process takes place. (1mk)

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b) Distinguish between synapsis and crossing over. (2mks)

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