

NAME:.....

INDEX NO:.....

SCHOOL:.....

CANDIDATE'S SIGN:.....

DATE:.....

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

Mrs KETIKO

# MERU COUNTY JOINT EVALUATION EXAM - 2014

*Kenya Certificate of Secondary Examination K.C.S.E*

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

## INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided.
- Sign and write the date of the examination in the spaces provided above.
- Answer ALL questions in this question paper.
- All your answers must be written in the spaces provided in this question paper.
- Candidate should answer the questions in English.

### FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1-28	80	

*This paper consists of 12 printed pages.  
Candidates must check to ascertain that all pages are printed as indicated  
and that no question(s) is/are missing.*

2/21  
State the use of the following apparatus in the study of living organisms. (2mks)

(a) Pooter

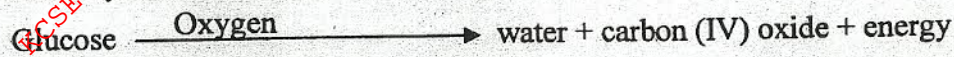
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(b) Bait trap

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2. Study the equations below and answer the questions that follow:

Pathway A



Path way B



(a) Identify the type of respiration represented by

Pathway A

(1mk)

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Pathway B

(1mk)

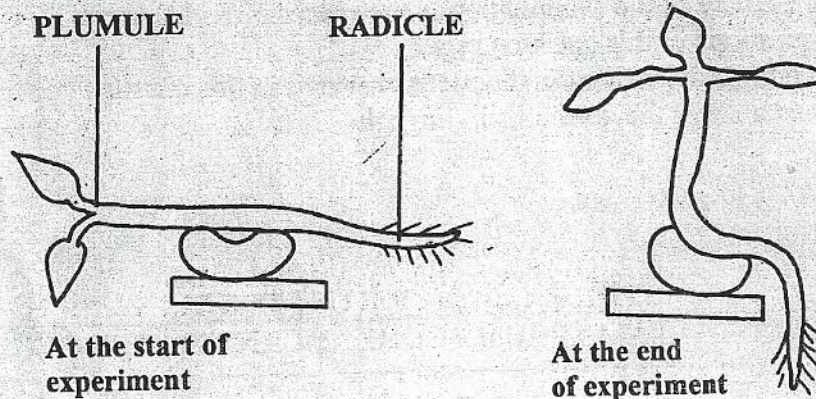
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(b) Where does pathway B occur in a living cell?

(1mk)

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3. An experiment was set-up in a darkroom and the results were as shown below:



(a) State the response shown by the plumule.

(1mk)

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(b) Account for the response shown by the radicle.

(3mks)

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The scientific names of a donkey horse and a rat are: Iquus ass, Iquus caballus and Rattus rattus.

(i) Identify the animals that are closely related.

(1mk)

(ii) Give a reason for your answer in 4 (i) above.

(1mk)

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5. Industrial wastes may contain metallic pollutants. State how such pollutants may indirectly reach and accumulate in the human bodies if such wastes are dumped into rivers. (3mks)

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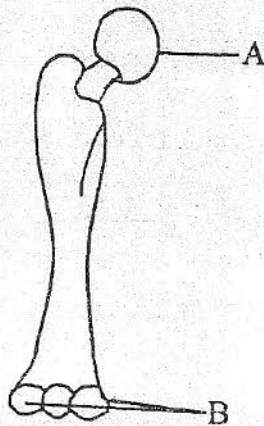
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6. The diagram below represents a bone in a mammal.



(a) Identify the bone

(1mk)

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(b) Name the bone that articulates with the above bone at the point labelled A. (1mk)

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(c) Identify the part labelled B. (1mk)

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(d) What is the name of the joint formed at the part labeled B. (1mk)

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7. Differentiate between guttation and transpiration. (2mks)

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State the functions of the following cell organelles.

(a) Nucleolus (1mk)

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(b) Centrioles (1mk)

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9. Distinguish between complete and incomplete metamorphosis. (2mks)

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10. Name one genetic disorder caused by gene mutation which is sex-linked. (1mk)

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11. Name the blood vessel that:

(a) Has capillaries on both ends. (1mk)

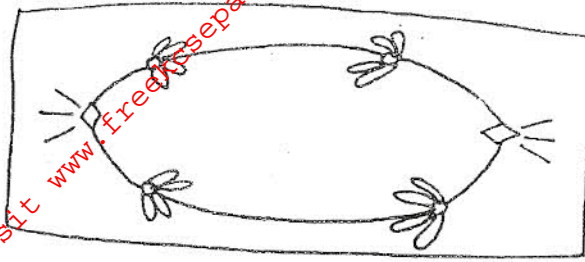
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(b) Transports blood from the heart to the lungs. (1mk)

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12. Below is a stage in cell division.



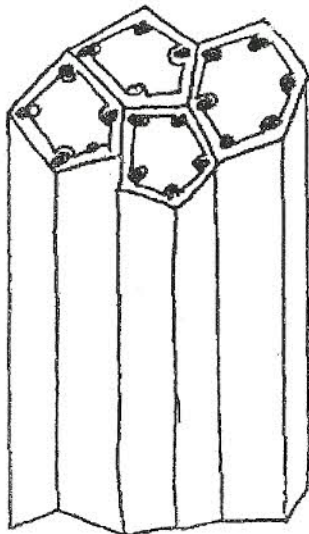
(a) Identify the stage. (1mk)

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

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The figure below shows two plant tissues.



tissue X



tissue Y

(a) Identify the tissue: (2mks)

(i) X

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(ii) Y

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(b) Name the strengthening material found in tissue X. (1mk)

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X14. Describe what happens during the light stage of photosynthesis. (3mks)

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X15. How are the red blood cells adapted to their functions? (2mks)

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X16. What is the advantage of breathing in through the nostrils other than through the mouth? (2mks)

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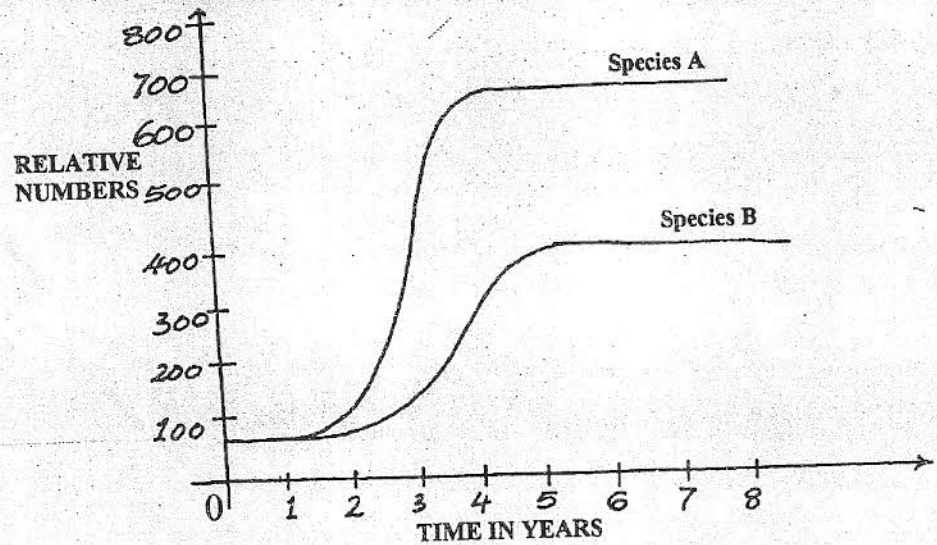
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17. Name the parts of the brain which control:- (1mk)

(a) Involuntary activities e.g. breathing. (1mk)

(b) Voluntary body movement. (1mk)

18. Two herbivorous mammalian species were introduced into an ecosystem at the same time and in equal numbers. The graph below represents their populations during the first seven years. Study the graph and answer the questions that follow.



(a) (i) Which species has a better competitive ability? (1mk)

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(ii) Give reason for your answer. (1mk)

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(b) A natural predator for species A was introduced into the ecosystem with a reason state how the population of each species would be affected. (2mks)

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(a) What is meant by the term seed dormancy? (1mk)

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(b) State two factors in seeds that cause seed dormancy. (2mks)

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20. Give three functions of pectoral and pelvic fins in a bony fish. (3mks)

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(a) Name the part of a light microscope which: (1mk)

(i) Regulates the amount of light passing to the stage. (1mk)

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(ii) Concentrates and directs light to the specimen on the stage. (1mk)

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21

(b) Why is it recommended to keep the stage of the microscope dry? (1mk)

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22. Explain why individuals with smaller sizes require more energy per kilogram of body weight than those with large sizes. (3mks)

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23. The diagram below represents a type of muscle.



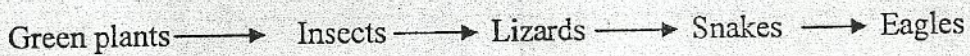
(a) Identify the type of muscle. (1mk)

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(b) Name two parts of the human body where this type of muscle can be found. (2mks)

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24. Study the food chain below and answer the questions that follow:



(a) Name the trophic level occupied by lizards. (1mk)

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(b) Explain why the energy from insects to lizards is more than that from lizards to snakes. (2mks)

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(c) Distinguish between pyramid of numbers and pyramid of biomass. (2mks)

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25. (a) State three characteristics of kingdom Monera that are not found in other kingdoms. (3mks)

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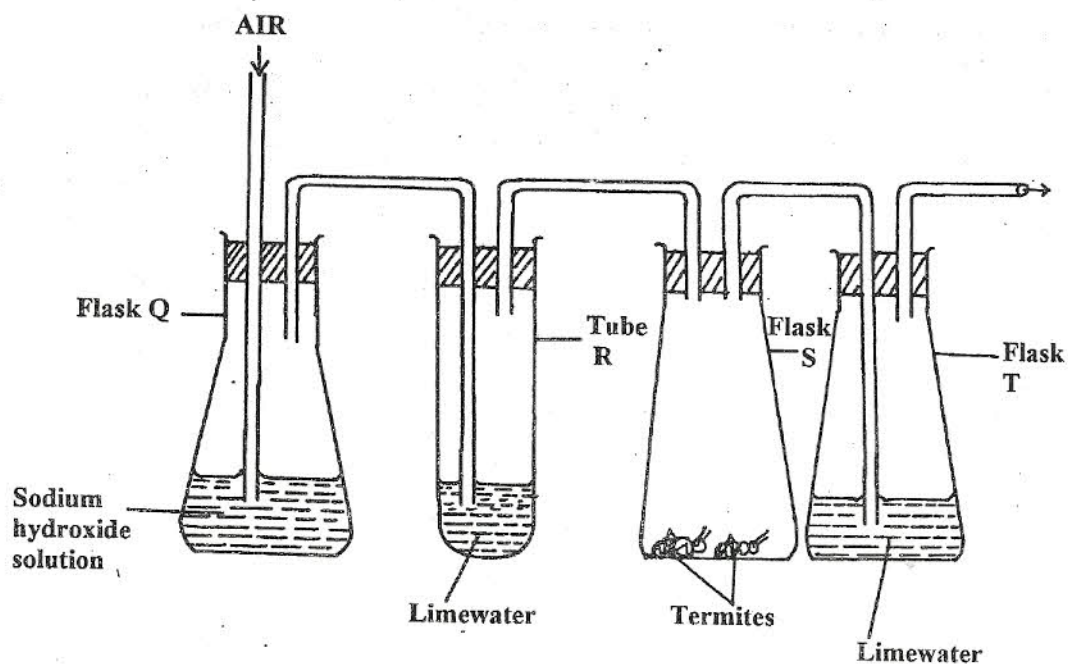
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(b) Name the kingdom to which yeast belongs. (1mk)

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26. The diagram below represents a set-up that students used in an investigation.



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

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(b) State the role of sodium hydroxide in flask Q. (1mk)

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(c) (i) What observations were made in tube R and flask T? (2mks)

Tube R

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Flask T

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(ii) Account for the observation made in flask T. (1mk)

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27. Name the tissue in plants responsible for:

(i) Growth

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(ii) Transport of sugars

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28. (a) State two characteristics that researchers select in breeding programmes. (2mks)

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(b) Distinguish between continuous and discontinuous variations in genetics. (2mks)

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