

NAME:.....INDEX .....DATE.....

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

231/1  
BIOLOGY  
PAPER 1  
(Theory)  
JULY/AUGUST 2010  
TIME: 2HOURS

## JOINT INTER-SCHOOLS EVALUATION TEST (JISSET) Kenya Certificate of Secondary Education

231/1  
BIOLOGY  
PAPER 1

### INSTRUCTIONS TO CANDIDATES.

- ❖ Write your name and index number in the space provided.
- ❖ Answer **ALL** the questions in this paper in the spaces provided.

#### For examiner's use only

Question	Maximum	Candidate's score
1-27	80	

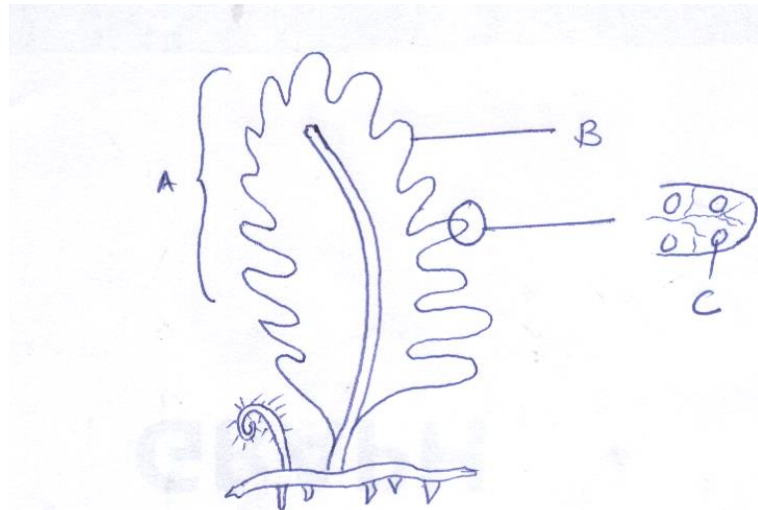
1. (a) State the importance of a testcross in genetics (1mk)

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(b) Name the four organic bases that are present in the RNA molecule. (1mk)

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2. The diagram below represents the sporophyte generation of a fern plant. Study it and answer the questions that follow.



a) Name the parts labeled A and B (2mks)

A.....

B.....

b) Suggest the significance of the structure labeled C (2mks)

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3. Give an example of a sex linked trait in humans on

i. Y chromosome..... (1mk)

ii. X chromosome..... (1mk)

4. State two ways by which plants compensate for lack of ability to move from one place to another (2mks)

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5. Explain why a constant body temperature is maintained in mammals (3mks)

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6. Name two mechanisms that hinder fertilization in flowering plants. (2mks)

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7. State the functions of the following structures in a mammalian tooth. (2mks)

(a) Pulp cavity

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(b) Enamel

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8. (a) State three adaptations of plants which enables them reduce water loss. (3mks)

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(b) Suggest two factors that may lead to increased rate of transpiration. (2mks)

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9. State the use of the following apparatus in collecting and observing organisms

a) Pooter (1mk)

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b) Hand lens (1mk)

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c) Pitfall trap (1mk)

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10. The diameter of the field of view was estimated to be 50mm under a certain magnification. Six cells were observed along the diameter of the field of view.

What was the diameter of one cell in microns ( $\mu m$ ) (3mks)

11. What is meant by the following ecological terms.

a) Autecology (1mk)

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b) Synecology (1mk)

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c) Habitat (1 mk)

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12. Explain the role of the following components of the skin when the temperature is high,

a) Sweat glands (2mks)

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b) The Erector pili muscle (2mks)

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c) Blood arterioles (2mks)

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13. State the importance of the following processes to living organisms

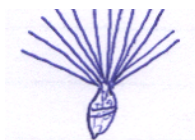
a) Locomotion (1mk)

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b) Irritability (1mk)

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14. The diagram below represents a mature fruit of a certain plant.



a) State the agent dispersal for the fruit. (1mk)

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

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c) State two other characteristics of fruit and seed dispersal by the agent named in (a) above (2mks)

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15.State three adaptations of gills to their function. (3mks)

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16.Give three differences between Nervous and Hormonal communication. (3mk)

Nervous	Hormonal

17.(a) What is organic evolution (1mk)

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(b) Distinguish between divergent and convergent evolution. (2mk)

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(c) Give one way in which Homo sapiens differ from Homo habilis. (1mk)

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18.(a) State the function of olecranon process. (2mks)

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(b) Which type of joint is found at the articulation of:

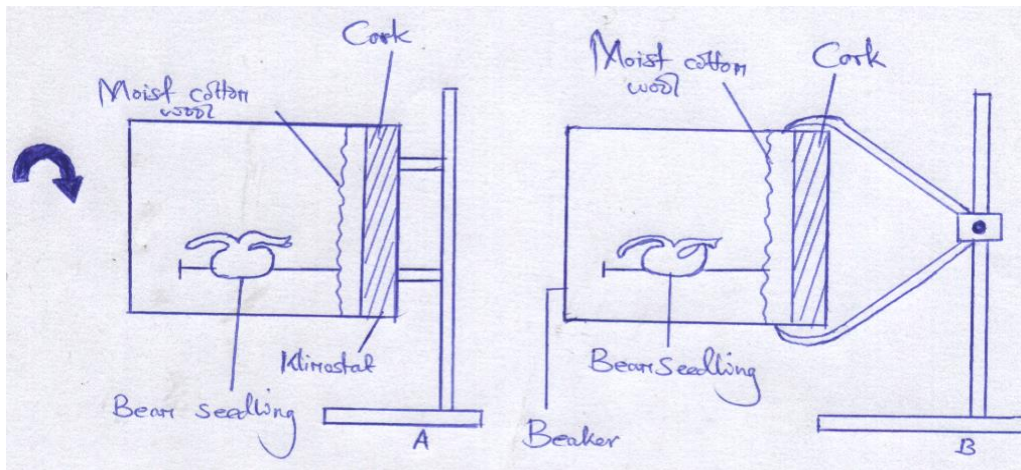
(i) Pelvic girdle and femur (1mk)

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(ii) Humerus and ulna (1mk)

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19. In an investigation, bean seedlings were set up as shown in the diagram below.



In set up A the klinostat was set in motion and the two set ups were left for three days.

- a) What was the aim of the experiment? (1mk)

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- b) What observations were made in set up A and B. (2mks)

Set A

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Set B

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- c) Account for the curvature of the radical in observations in set up B. (1mk)

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- 20.(a) State three properties of a cell membrane. (3mks)

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- (b) Distinguish between Osmotic pressure and Osmotic potential. (1mk)



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21. Give three main functions of water in a living organism. (2mks)

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22. (a) (i) What is tissue fluid? (2mks)

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(ii) State the importance of tissue fluid. (1mk)

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(b) Name the blood vessel with the highest glucose. (1mk)

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23. (a) State two functions of the cerebrum (2mks)

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(b) What would happen if cerebellum was damaged? (1mk)

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24. *Ascaris lumbricoides* is a parasitic roundworm which infects intestines of pigs and human beings. State two effects of the parasite on the host. (2mks)

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25. How are leaves of submerged plants adapted to their functions? (2mks)

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26. What is meant by

(a) Natural immunity (1mk)

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(b) Acquired immunity (1mk)

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27. Name the class in the phylum arthropoda which has the largest number of individuals (1mk)

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