

# KIAMBU INTERZONAL

## KENYA CERTIFICATE OF SECONDARY EDUCATION

231/1

BIOLOGY (THEORY)

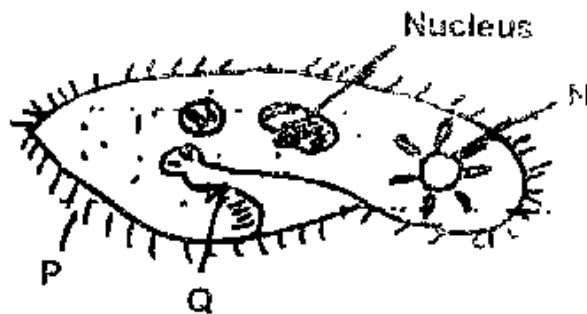
PAPER 1

JULY/AUGUST-2009

TIME: 2 ½ HOURS

### Answer all questions

1. What is meant by the following terms? (2 marks)
  - (i) Community
  - (ii) Autecology's
2. The diagram below was observed by students under a microscope. Answer the questions that follow.



- (a) (i) Name the kingdom to which the organism belongs (1 mark)
  - (ii) Give reasons for your answer above. (1 mark)
  - (b) Name the structures labeled N, P and Q (3 marks)
3. (a) Explain why plants do not have an elaborate excretory system. (2 marks)
  4. Give 3 differences between tropic and tactic responses. (3 marks)
  5. What is the role of ecdysome or moulting hormone? (1 mark)
  6. What is the significance of the following structures found in male and female reproductive parts?
    - (a) Prostrate gland
    - (b) Cilia in oviduct
    - (c) Acrosome in sperm cell

7. A process that occurs in plants is represented by the equation below.  
 $C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2 + \text{Energy}$  (1 mark)

- (a) Name the process. (1 mark)  
(b) State the economic importance of the above process (2 marks)

8. Explain what would happen to red blood cells if placed in hypotonic solution like distilled water (3 marks)

9. Differentiate between open and closed circulatory systems. (2 marks)

10. List 3 functions of the bark in plants. (3 marks)

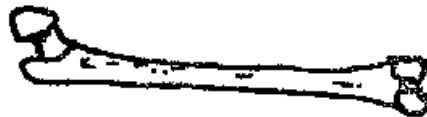
11. Under certain conditions the carbon(IV) oxide in the blood of a mammal rises above the normal level. State two ways to lower the level back to normal.

(2 marks)

12. (a) Define accommodation. (2 marks)

(b) What is hypermetropia?

13. The diagram below represents a mammalian bone.



(a)(i) Name the bone (1 mark)

(ii) Name the type of joint formed by the bones at its interior end with the adjacent bone. (1 mark)

(b) Name the types of joint formed by various bones of the head. (1 mark)

14. A person was found to pass out large amounts of dilute urine frequently and complained of thirst most of the time. Name the

(a) disease the person is suffering from

(b) Hormone that was deficient.

(c) State importance of osmoregulation in organisms

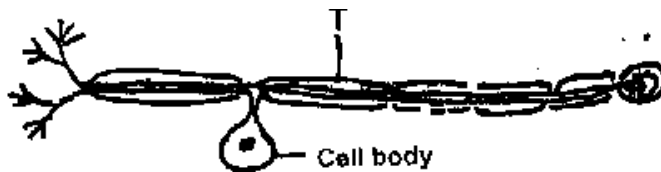
15. (a) Distinguish between homologous and analogous structures in evolution. (2 marks)

(b) State the evidence which does not support Lamarck's theory.

- 16 during a study of the behaviour of chromosomes during meiotic division, Student observed the following using a light microscope.

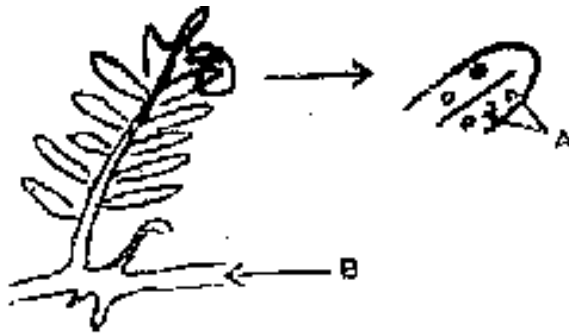


- (a) Name point X (1 mark)  
 (b) Name the process that may take place at point X. (1 mark)  
 (c) What may be the effect of the process named in (b) above to the offspring? (1 mark)
17. Why are gills in fish highly vascularized (1 mark)
18. (a) What is mutation/ (1 mark)  
 (b) Name any 2 causes of mutation. (2 marks)
19. The diagram below represents a nerve cell.



- (a) (i) Identify the nerve cell (1 mark)  
 (ii) Give reasons for your answer in (a) above. (1 mark)  
 (b) Name the structure labeled T. (1 mark)  
 (c) using an arrow, indicate on the diagram the direction of Movement of an impulse in the cell. (1 mark)
20. (a) What is meant by sex linked genes? (1 mark)  
 (b) State 3 differences between Deoxyribonucleic acid (DNA) and Ribonucleic acid (RNA). (3 marks)
21. (a) Why are monosaccharides referred to as reducing sugars. (2 marks)  
 (b) Starch and glycogen are both polysaccharides. What is the difference between both of them? (2 marks)

22. Name the organelles that would be present in large numbers in the following tissues. (2 marks)
- Photosynthetic tissue
  - Secretory tissue
23. (a) Explain the disadvantages of anaerobic respiration in plant roots. (2 marks)
- (b) Suggest two ways of breaking seed dormancy. (2 marks)
24. Name the causative agent of the following diseases (3 marks)
- herpes
  - Bilharzia
  - Typhoid
25. State two roles of each of the following hormones in the menstrual cycle.(2 marks)
- Oestrogen
  - Progesterone
26. Name two roles of each of the following hormones in the menstrual cycle. (2 marks)
27. Describe the path taken by carbon(IV) Oxide released from the tissues of an insect to the atmosphere. (2 marks)
28. The diagram below represents a fern.



Name the parts labeled A and B. (2 marks)