

29.4 BIOLOGY (231)

29.4.1 Biology Paper 1 (231/1) – Theory

Name ..... Index No ...../.....

231/1  
Paper 1  
BIOLOGY  
Theory  
Oct./Nov. 2008  
2 hours

Candidate's Signature .....

Date .....

**THE KENYA NATIONAL EXAMINATIONS COUNCIL**  
**Kenya Certificate of Secondary Education**  
**BIOLOGY**  
**Paper 1**  
**(Theory)**  
2 hours

**Instructions to candidates**

*Write your name and index number in the spaces provided above.*  
*Sign and write the date of examination in the spaces provided above.*  
*Answer ALL the questions in the spaces provided.*

**For Examiner's Use Only**

Question	Maximum Score	Candidate's Score
1-30	80	

**This paper consists of 11 printed pages.**

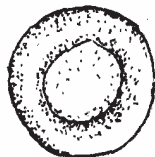
**Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.**

- 1 Name the tissues in plants responsible for:
- (a) transport of water and mineral salts;
  - (b) transport of carbohydrates;
  - (c) primary growth. (3 marks)

- 2 State the importance of the following processes that take place in the nephron of a human kidney:
- (a) ultrafiltration: (1 mark)
  - (b) selective reabsorption. (1 mark)

- 3 (a) Name a disease of the liver whose symptom is jaundice. (1 mark)
- (b) State the causative agent of:
- (i) cholera; (1 mark)
  - (ii) candidiasis. (1 mark)

4 The diagrams below show a red blood cell that was subjected to a certain treatment.



At start



At the end of experiment

- (a) Account for shape of the cell at the end of the experiment. (2 marks)
  - (b) Draw a diagram to illustrate how a plant cell would appear if subjected to the same treatment. (1 mark)
- 5 (a) State **two** factors that affect enzymatic activities. (2 marks)
- (b) Explain how **one** of the factors stated in (a) above affects enzymatic activities. (1 mark)

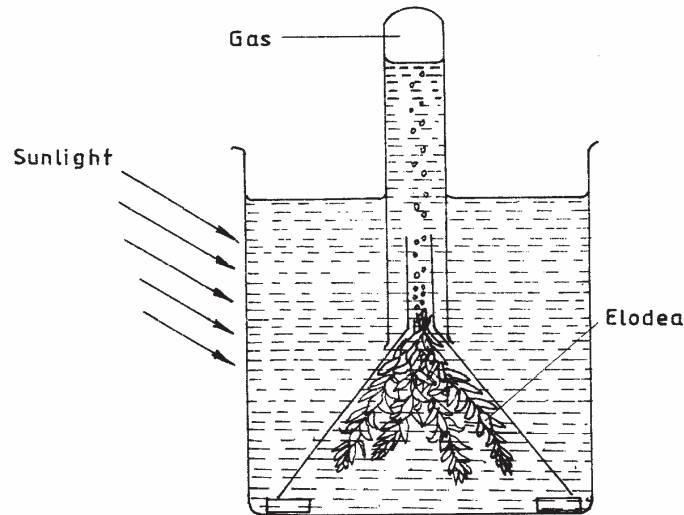
- 6 (a) What is meant by non-disjunction? (1 mark)
- (b) Give **two** examples of continuous variation in humans. (2 marks)
- 7 (a) What is a fossil? (1 mark)
- (b) How does convergent evolution occur? (3 marks)

8 The diagram below shows a stage in mitosis in a plant cell.

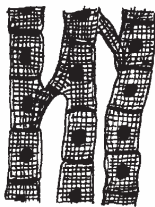


- (a) Name the stage of mitosis. (1 mark)
- (b) Give **two** reasons for your answer in (a) above. (2 marks)
- (c) Name the part of the plant from which the cell used in the preparation was obtained. (1 mark)
- 9 Give **three** factors that determine the amount of energy a human being requires in a day. (3 marks)
- 10 (a) Name the antigens that determine human blood groups. (2 marks)
- (b) State the adaptation that enables the red blood cells to move in blood capillaries. (1 mark)
- 11 (a) What is homeostasis? (1 mark)
- (b) Name **three** processes in the human body in which homeostasis is involved. (3 marks)
- 12 State **two** functions of the endoplasmic reticulum. (2 marks)
- 13 (a) Name the part of the retina where image is formed. (1 mark)
- (b) State **two** characteristics of the image formed on the retina. (2 marks)

- 14 Describe the **three** characteristics of a population. (3 marks)
- 15 Explain what happens when there is oxygen debt in human muscles. (2 marks)
- 16 The diagram below represents a set up that was used to investigate a certain process in a plant.



- (a) State the process that was being investigated. (1 mark)
- (b) State a factor that would affect the process. (1 mark)
- 17 Account for the following phases of a sigmoid curve of growth of an organism:
- (a) lag phase; (1 mark)
- (b) plateau phase. (1 mark)
- 18 How is the epidermis of a leaf of a green plant adapted to its functions? (2 marks)
- 19 The diagram below represents a tissue obtained from an animal.



- (a) Identify the tissue. (1 mark)
- (b) State the function of the tissue named in (a) above. (1 mark)
- 20** (a) What is single circulatory system? (1 mark)
- (b) Name an organism which has single circulatory system. (1 mark)
- (c) Name the opening to the chamber of the heart of an insect. (1 mark)
- 21** (a) What is seed dormancy? (1 mark)
- (b) Name a growth inhibitor in seeds. (1 mark)
- 22** State **two** characteristics of aerenchyma tissue. (2 marks)

**23** The diagram below shows a human tooth.



- (a) Identify the tooth. (1 mark)
- (b) How is the tooth adapted to its function? (1 mark)
- (c) State the role of the following vitamins in the human body:
- (i) C ..... (1 mark)
- (ii) K ..... (1 mark)
- 24** Name the sites where light and dark reactions of photosynthesis take place. (2 marks)
- Light reaction .....
- Dark reaction .....

25 Giving a reason in each case, name the class to which each of the following organisms belong: (4 marks)

Bean plant .....

Reason .....

Bat .....

Reason .....

26 State **one** use of each of the following excretory products of plants:

(a) colchicine; (1 mark)

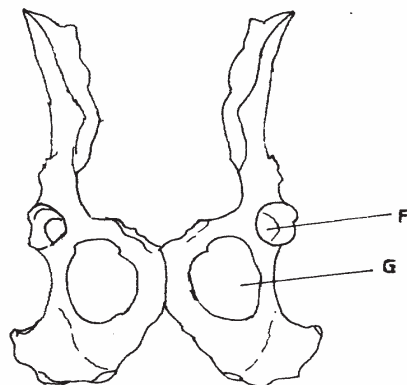
27 Explain how anaerobic respiration is applied in sewage treatment. (1 mark)

28 (a) State the mode of asexual reproduction in yeast. (1 mark)

(b) Distinguish between protandry and protogyny. (2 marks)

29 State a function of amniotic fluid. (1 mark)

30 The diagram below shows two fused bones of a mammal.



(a) Identify the fused bones. (1 mark)

(b) Name the

(i) bone that articulates at the point labelled F (1 mark)

(ii) the hole labelled G. (1 mark)