Name:_____

Form:_____

231/1 Candidate's

Signature:_____

BIOLOGY

Paper 1 Date:

_____

(THEORY)

March 2014

2 hours

KCSE MINI-MOCK EXAMINATIONS

Instructions to Candidates

(a) *Write your name and class in the spaces provided above.*
(b) *Sign and write the date of examination in the spaces provided above.*
(c) *Answer **all** the questions.*
(d) *Answers must be written in the spaces provided in the question paper.*
(e) *Additional papers must **not** be inserted.*
(f) ***This paper consists of 7 printed pages.***
(g) ***Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.***
(h) ***Candidates should answer the questions in English.***

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1 - 42	80	

1. (a) How is energy stored in a cell? (1 mark)

(b) How is this energy released when the cell needs it? (1 mark)

2. Name the antigens that determine human blood groups. (1 mark)

3.(a) What is homeostasis? (1 mark)

(b) Name three homeostatic processes in the body. (1 mark)

4. Why is oxygen necessary in the germination of seeds? (2 marks)

5. Name the opening to the chamber of the heart of an insect. _____ (1 mark)

6. Why are bile salts not regarded as enzymes? (1 mark)

7. Name the organs/structures in which meiosis occurs in

(a) a rabbit.

_____ (1 mark)

(b) a bean plant.

(1 mark)

8. Name the causative agent, vector and one possible method of preventing infection with malaria.
(3 marks)

(a) Causative agent:

_____

_____

(b) Vector:

_____

_____

(c) Prevention of infection:

_____

_____

_____

9. An organism that has received similar alleles from both its parents is described as being

_____

_____ (1 mark)

10. Give two structural differences in the daughter cells produced after mitosis and meiosis.

(i)

_____

_____

_____

_____

(ii)

_____

_____

(2 marks)

11. Give two important functions of fruits to a plant. (2 marks)

12. Distinguish between an endotherm and an ectotherm. (2 marks)

13. Give the basic explanation for the following observations. (1 mark)

I: Crops are more efficient as a source of food for humans than livestock.

II: A given mass of organisms at one trophic level supports a smaller mass of organisms at the next trophic level.

III: It is unusual for there to be more than six trophic levels in a food chain.

14. Name the structural unit of deoxyribonucleic acid. (1 mark)

_____

15. Give two functions of the mucus produced along the alimentary canal. (2 marks)

(i) _____

_____

(ii) _____

_____

16. Name the three other kingdoms, apart from Plantae and Animalia, in order of decreasing complexity. (2 marks)

_____

17. A sudden spontaneous change in the structure of deoxyribonucleic acid or of a chromosome is called _____ (1 mark)

18. What is the importance of the following in an ecosystem?

(a) Decomposers. (1 mark)

(b) Predation. (1 mark)

19. When preparing a slide of the stem of *Bidens pilosa*, Kamau was asked to carry out the following steps. Give one reason why each step was carried out.

(a) Use a sharp razor to obtain a thin slice of the stem. (1 mark)

(b) Place a drop of water on the slice of the stem on the microscope slide. (1 mark)

(c) Add a drop of methylene blue dye onto the specimen on the microscope slide. (1 mark)

(d) Lower the coverslip gently into place over the slice of stem. (1 mark)

20. Why is the circulatory system of a bee said to be an open circulatory system? (2 marks)

21. State three causes of genetic variation. (3 marks)

22. A man of blood group B is married to a woman of blood group AB. What are the possible blood groups of their children? (1 mark)

23. Cardiac contractions said to be intrinsic. Explain. (1 mark)

24. What role does the pituitary gland play in the oestrus cycle in human females? (4 marks)

25. Photosynthesis is an enzyme-controlled process which occurs within chloroplasts in plants.

Where in the chloroplasts

(a) is chlorophyll located?

_____ (1 mark)

(b) are the enzymes located? _____

(1 mark)

26. Name the ground material of each of the following structures: (3 marks)

(a) nucleus _____

(b) mitochondrion _____

(c) vacuole of a plant cell _____

27. How do the following features adapt the alveoli to gaseous exchange?

(a) One cell layer thick alveolar and capillary walls. (1 mark)

(b) Dense network of capillaries around the alveoli. (1 mark)

(c) Film of water on the surfaces of the inner walls of the alveoli. (1 mark)

28. State three ways in which atmospheric nitrogen can be "fixed" into nitrates. (3 marks)

29. Name the blood vessel that supplies blood to cardiac muscle. (1 mark)

30. Give three functions of mammalian skin other than its protective function. (3 marks)

31. Name two factors that maintain the populations of animals at carrying capacity. (2 marks)

32. Identify the type of variation shown by each of the traits given below: (2 marks)

(a) ABO blood groups in man.

(b) length of internodes in plants.

33. Name the structure that elongates to lift the cotyledons above the soil surface during epigeal germination.

(1 mark)

34. Korir observed onion epidermal cells under the light microscope using low power magnification and saw ten cells along the diameter of the field of view. He later viewed the cells using high power magnification.

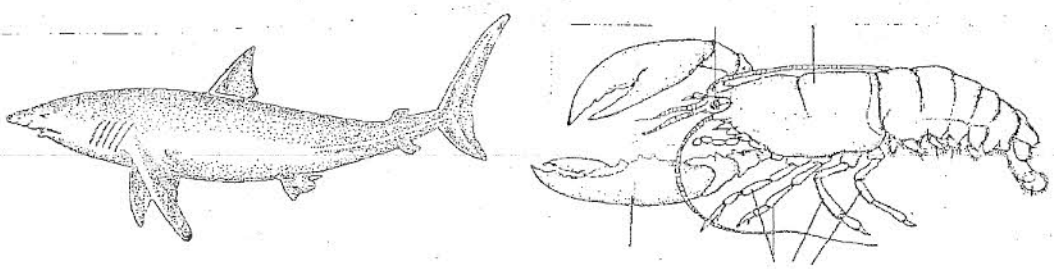
Giving a reason for your answer, would you expect him to see fewer or more of the cells?

_____

_____

_____ (2 marks)

35. Indicate the phyla and classes to which the organisms shown below belong. (4 marks)



Phylum: _____

_____

Class: _____

_____

36. Name an organ in the body which produces both enzymes and hormones. (1 mark)

_____

_____

37. Explain why the blood of a mosquito does not transport respiratory gases. (1 mark)

_____

_____

_____

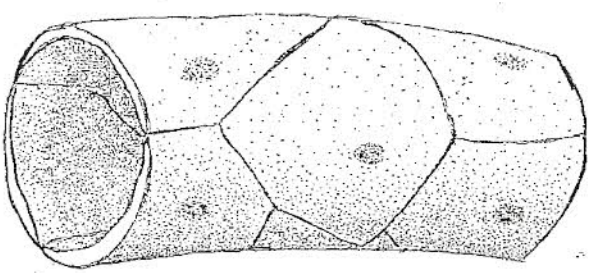
38. How does denaturation affect enzyme action? (2 marks)

_____

_____

_____

39. The structure shown below forms part of the circulatory system in man.



(a) Name the structure.

_____ (1 mark)

(b) State one way in which it is adapted to perform its functions. (1 mark)

_____

_____

_____

40. Give two similarities between diffusion and osmosis. (2 marks)

(i)

_____

_____

_____

(ii) _____

_____

_____

42. Give the terms for which the following statements are definitions. (2 marks)

(a) The failure of homologous chromosomes to separate during anaphase I of meiosis.

_____

_____

(b) An organism with an extra haploid set of chromosomes.

_____