231/1
BIOLOGY
PAPER 1
TIME: 2 HOURS

Kenya Certificate of Secondary Education (K.C.S.E.)

Biology
Paper 1

INSTRUCTIONS TO CANDIDATES:

- *Write your **name** and **index number** in the spaces provided.*
- *Sign and write **date** of examination in the spaces provided above*
- *Answer **all** the questions in section **A** and **B***

For Examiner's Use Only:

QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
1- 31	80	

This paper consists of 8 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing

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1. State the use of each of the following apparatus in collection of specimens. (2mks) a) Bait trap

……

b) Pooter

……

2. Name the class of animals that exhibit (2mks)

a) Open circulatory system…….

b) Closed circulatory system……

3. a) State **two** functions of the centrole. (2mks)

(i)……

(ii)……

b) Which organelles would be abundant in:

(2mks)

(i) Skeletal muscle

……

(ii) Palisade tissue

……

4. State two roles played by active transport in animals. (2mks)

……

……

5. Distinguish between parasitic and predatory modes of feeding. (2mks)

……

……

6. Explain how sunken stomata lower the rate of transpiration. (2mks)

……

……

7. (a) Give a reason why blood does not clot in an unwounded blood vessel. (1mk)

……

……

(b) Name the condition that prevails when a vein or an artery is blocked by a blood clot? (1mk)

……

……

8. Name **two** structures for gaseous exchange in aquatic plants.
(2mks)

……

……

9. State the importance of the following features in gaseous exchange.

a) Presence of cartilage in trachea.
(1mk)

……

……

(b) Large surface area of the lungs.

(1mk)

……

……

10. Name **three** products of anaerobic respiration in plants.
(3mks)

……

……

……

11. Name **one** waste product that is

a) Almost absent in the renal vein but is a normally present in the renal artery. (1mk)

……

b) Transported in the blood and is not removed by the kidneys. (1mk)

……

12. State the role of the following bacteria in the nitrogen cycle. (a) Nitrosomonas.

……

(b) Nitrobacter

……

(c) Azotobacter

13. (a) State **one** advantage of cross pollination to plants. (1mk)

……

(b) Define the following (2mks)

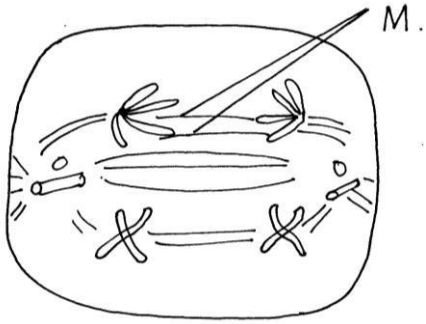
(i) Hypogynous flower

……

(ii) Pistilate flower

……

14. The diagram below represents a stage during cell division.



a)(i) Identify the stage of cell division. (1mk)

……

(ii) Give **two** reasons for your answer in **a(i)** above. (1mk)

……

……

b) Name the structure labeled **M**. (1mk)

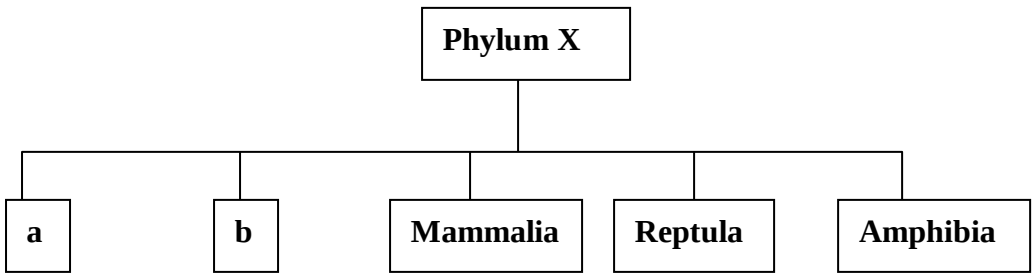
……

15. Explain why several auxiliary buds sprout when a terminal bud in a young tree in removed. (2mks)

……

……

16. Study the diagram below and answer the questions that follows.



a) What is the phylum **X** ?
(1mk)

……

……

(b) Name the classes labeled **a** and **b**.

(2mks) **a**…… **b**

……

17 (a) Define the following terms as used in genetics: (2mks)

(i) Mutation

……

(ii) Mutagen

……

(b) Write down the base sequence of messenger RNA (mRNA) that would be coded from DNA strand below. (1mk)

C – A – T – G – A – G – T

……

……

18. (a) The wing of a bird and that of an insect are analogous structure. This is an example of_____type of evolution. (1mk)

(b) Explain continental drift as an evidence of evolution.
(2mks)

……

……

19. State one function of each of the following parts of an eye.

(a) Fovea centralis (1mk)

……

……

(b) Aqueous and vitreous humour.
(1mk)

……

……

20. Name the type of response exhibited by.

(a) leaves of Mimosa pudica when they fold their after being touched.
(1mk)

……

……

(b) Euglena when it swims towards the source of light.
(1mk)

……

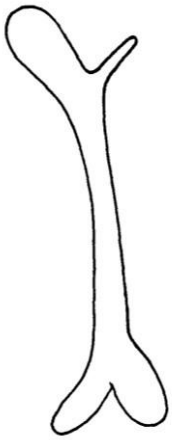
……

(c) Sperm cell when it swims towards the ovum.
(1mk)

……

……

21. Below is the diagram of a bone. Study it and answer the questions that follow.



(a) Identify the bone.
(1mk)

……

……

(b) Name the joints that would be formed in the posterior and anterior end of this bone. (2mks)
Posterior end ……..

Anterior end……

22. (a) Explain why the body temperature of a healthy person may rise upto 39°C on a hot humid day.
(2mks)

……

……

(b) Give **one** function of each of the following hormones.
(2mks)

(i) Aldosterone

……

……

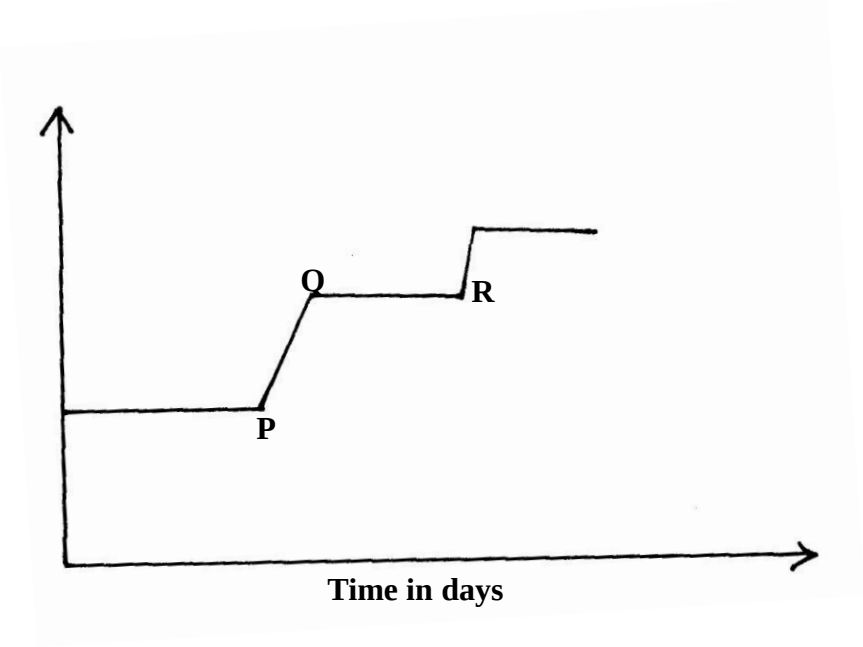
(ii) Antidiuretic Hormone

……

……

23. The graph below shows a sketch of the growth of an insect

Mass in grammes



(i) Name the type of growth represented by the curve shown above. (1mk)

……

……

(ii) Give reasons for the steps of the curve between

P and **Q**

(1mk)

……

……

Q and **R**

(1mk)

……

……

24. (a) Name the region of the gut in herbivorous mammals where digestion of cellulose takes place.

(1mk)

……

……

(b) A leaf of potted green plant which has been kept in the dark for 24 hrs was smeared with white petroleum jelly on its lower surface and exposed to sunlight for 6hrs. Starch test on the leaf was negative Account for observation. (3mks)

……

……

……

……

25. Give the role of the following parts of the male reproductive system.
(3mks) (a) Epididymis

……

……

(b) Prostrate gland

……

……

(c) Urethra.

……

……

26. Name a method that could be used to estimate the population size of the following organisms
(a) Fish in a pond. (1mk)

……

……

(b) Kikuyu grass in a garden

(1mks)

……

……

27. Give necessity of support in plants.

(3mks)

……

……

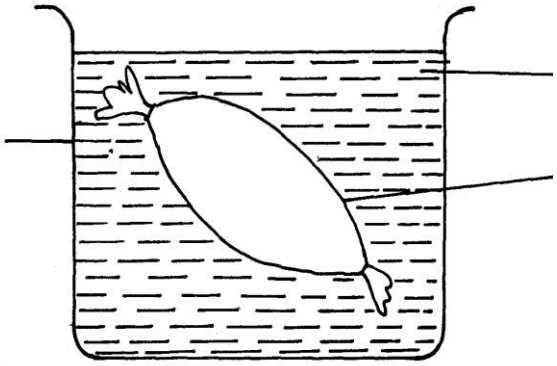
……

……

28. Study the apparatus that was used by the teacher to demonstrate the human intestine.

Water

Beaker **Visking tubing**



a) Name the structure in the intestine which is represented by visking tubing. (1mk)

……

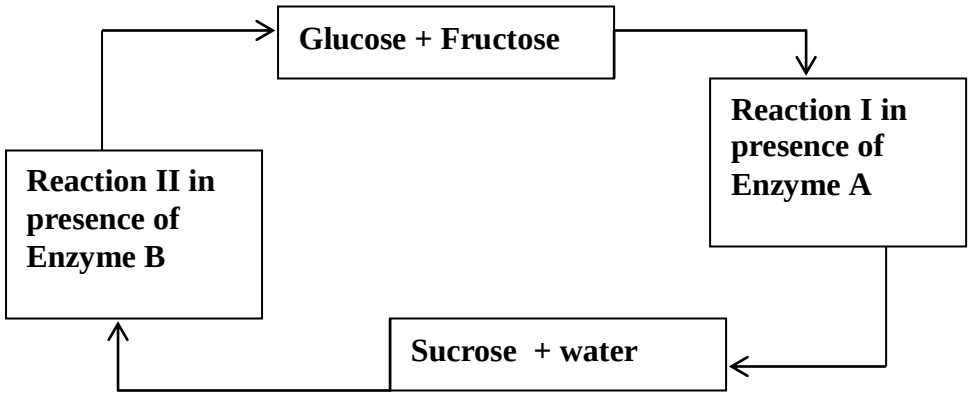
……

b) Name the part of the intestine to which the water is absorbed into. (1mk)

……

……

29. Study the diagram below



Name the reaction **I** and enzyme **B** (2mks)

Reaction **I** ……..

Enzyme **B** ……

30 Give **two** effects of drug abuse on human health. (2mks)

……

……

31. Distinguish between a reflex arc and reflex action. (2mks)

……

……