

NAME \_\_\_\_\_ ADMISSION NO. \_\_\_\_\_

CLASS \_\_\_\_\_

DATE: \_\_\_\_\_

231

BIOLOGY (Theory)

FORM 2

2 Hours

**BRAIN QUEST SERIES FORM 2 END OF YEAR EXAMS****2023**Instructions to Candidates

- Write your Name and admission Number in the Spaces Provided.
- Sign and write date of examination in the spaces provided.
- This paper consists of two sections A and B.
- Answer all the questions in Sections A and B in the spaces provided.
- You should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION AAnswer all the questions in Sections A in the spaces provided.1. The table below shows **three** enzymes **A**, **B** and **C** and their respective optimum pH.

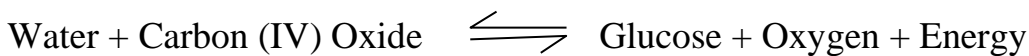
Enzyme	Optimum pH
A	6.8
B	2.0
C	8.0

- 
1. (i) Name the most likely region of the alimentary canal of a mammal where enzyme **B** would be found. (1mk)
- (ii) Give a reason for your answer in (a) (i) above (1mk)
2. Explain how the following adaptation reduce transpiration in xerophytes
- (a) Sunken stomata (2mks)
- (b) Thick waxy cuticle (2mks)
3. Give **two** characteristics that distinguish scientific names of organisms from the ordinary names (2mks)
- 4.(a) What is natural immunity (1mk)
- (b)(i) Define the term Allergy (1mk)
- (ii) List two causes of allergy in humans (2mks)

5. (a) Give one physiological difference between a plant cell wall and a cell membrane (1mk)

(b) State two structural differences between a cell wall and a cell membrane (2mks)

6. The following reaction may occur in a forward and backward direction



a) Name the organelle where the **above** reactions occur in:

(i) Forward direction

1mk,

(ii) Backward direction

1mk

(b) Give **one difference** and **one similarity** for the two organelles named in (a) above 2mk

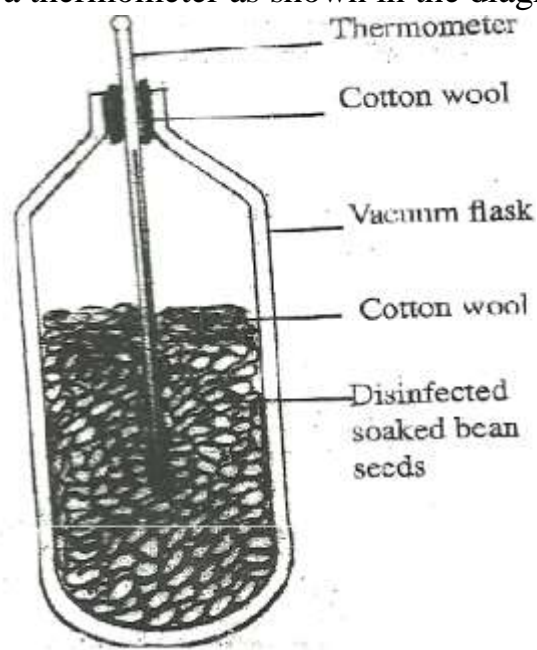
7. In an investigation, a student extracted three pieces of paw paw cylinders using a cork borer of 50 mm length and placed in a beaker containing a solution. The results in the table below.

Feature	Result
Average length of cylinders	56 mm
Stiffness of cylinders	stiff

- (a) Account for the results in the table above. (3 marks)
- (b) What would be a suitable control set-up for the investigation? (1 mark)

8. What is the effect of contraction of the diaphragm muscles during breathing in mammals? (3 marks)

9. In an experiment, disinfected soaked bean seeds were put in a vacuum flask which was then fitted with a thermometer as shown in the diagram below.



The temperature readings were taken every morning for three consecutive days.

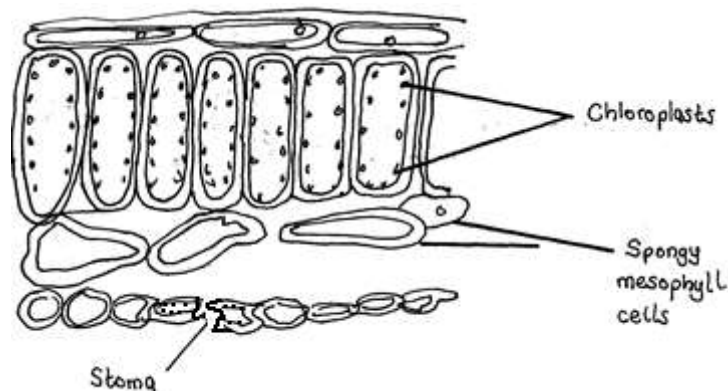
- a) Which process was being investigated? (1 mark)
- b) i) What were the expected results? (1 mark)
- ii) Account for the answer in (b) (i) above? (2marks)
- c) Why were the seeds disinfected? (2marks)

10. How does each of the following contribute to cooling of the body of a mammal?  
(a) Sweating. (2mks)

(b) Vasodilation (2mks)

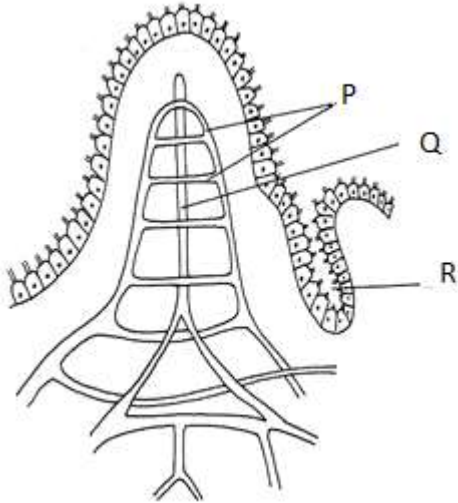
**SECTION B**

11. The figure below shows a section through a leaf. A leaf is designed for photosynthesis and this process provides a supply of simple sugars for a plant.



- a) i) State the adaption of the chloroplasts to photosynthesis. (2mks)
- ii) Explain the advantage of the distribution of the chloroplasts as shown in figure above. (2mks)
- iii) Suggest the function of the stomata and the spaces between the spongy mesophyll cells in the process of photosynthesis. (2mks)
- b) i) Name the tissue that translocate sugars from the leaves to other parts of the plant. (1mk)

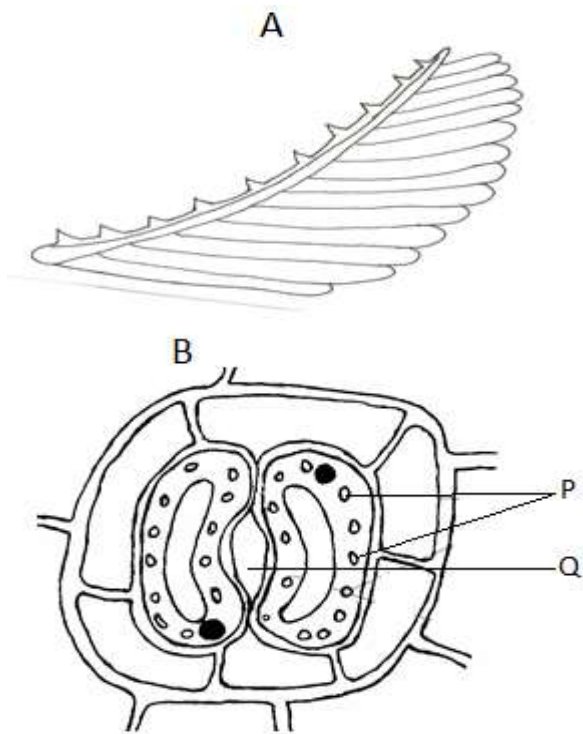
12. The diagram below shows a part of human digestive system. Study it and answer the questions below.



- (a) Identify the structure and state its functions (2mks)
- (b)(i) Name the parts labelled P and Q (2mks)
- (ii) State the role of the part labelled R (1mk)
- (c) How is the structure stated in (a) above adapted to its function (2mks)
- (d) What is the role of enzyme enterokinase in digestion? (1mk)
- e) Name two enzymes present in the juice secreted by part R. (2mks)

13. The diagrams below represent structures used for a certain process in living organisms. Study them and answer the questions that follow.

B



a) Identify the process

1mk

b) State two ways in which each of the structures is adapted to carry out the process named above

A

2mks

B

2mks



c) Name part P and Q in structure B.

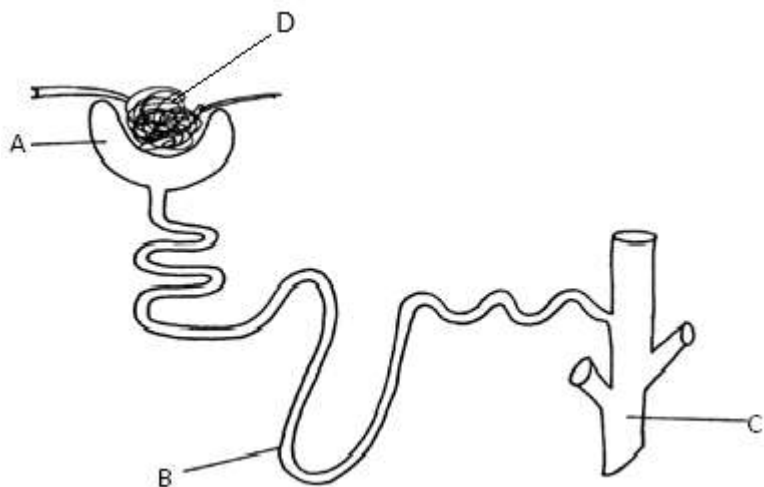
2mks

P

Q

d) Name one structure that carries out the process named in (a) above in a frog. 1mk

14.a)The diagram below represents a nephron of a mammal:



i)Name the parts labeled **A**, **B** and **D**

3mks

A

B

C

(ii) Name a major substance in glomerular filtrate whose concentration remains the same between A and C 1mks

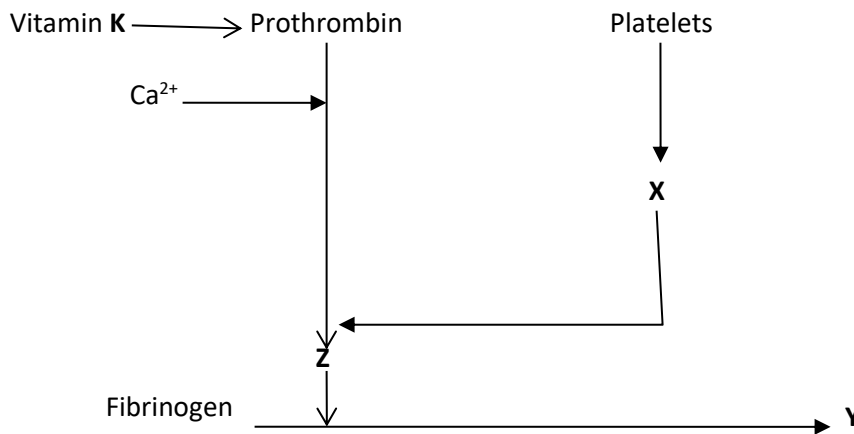
b) If the human pancreas is not functional:-

(i) Name the hormone which will be deficient 1mk

(ii) Name the disease the human is likely to suffer from 1mk

(iii) What is diuresis? 1mk

15. a) The flow diagram below represents blood clotting process



i) Name the proteins represented by the letters; X, Y Z (3mks)

X

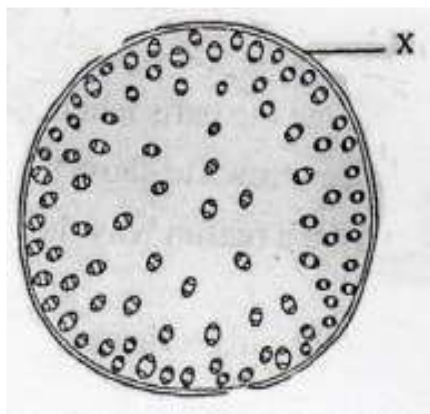
Y

Z

b) State the importance of blood clotting

2mks

16. The diagram below shows a transverse section of a plant organ



(a) Name the plant organ from which the section was obtained

(1mk)

(b) (i) Name the class to which the plant organ was obtained.

(1 mk)

(ii) Give a reason for your answer in (b) (i) above.

(1 mk)

(c) Name the part labeled X

(1 mk)

17. Describe the functions of various parts of the mammalian heart (20mks)