NAME: _____SCHOOL: _____

2024 M022/I

NSANJE DISTRICT MOCK

MALAWI SCHOOL CERTIFICATE OF EDUCATION EXAMINATION

BIOLOGY

Subject Number: M022/I

Tuesday, 19 March

Time Allowed: 2 hours

8:00-10:00 am

PAPER I

(100 marks)

Theory

Instructions

1. **This paper contains 15 printed pages. Please check.**
2. This paper contains **two** sections, **A** and **B.** Answer **all** questions in **both** sections in the spaces provided.
3. The maximum number of marks for each answer is indicated against each question. A pencil should be used for all drawings.
4. Calculators may be used.
5. **All working must be clearly shown.**
6. Write your **Name and School Name** at the top of each page of your question paper in the spaces provided.
7. In the table provided on this page, **tick** against the question number you have answered.

Question Number	Tick if answered	Do not write in these columns	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
	Total		

Section A (70 marks)

Answer **all** the questions in this section in the spaces provided

1. **Figure 1** is a diagram of a microorganism. Use it to answer the questions that follow.

Figure 1

a. Identify the microorganism

_____

(1 mark)

b. Name the part labelled Z

_____

(1 mark)

c. How is the part mentioned in 1(b) above used by the Microorganism?

_____

_____

(2 marks)

d. State **two** reasons why diseases are important to the community

_____

_____

(2 marks)

Continued/...

2. a. State any two effects of mutations

_____

_____

_____

_____

(2 marks)

b. (i). What type of Variations are Blood groups. Support your answer

_____

_____

(1 mark)

(ii). Give a reason for your answer in 2. b. (i). above.

_____

_____

(1 mark)

c. State the difference in Antibodies between persons with blood group A and AB.

_____

_____

_____

(1 mark)

Continued/...

d. Explain why a person with blood group O is called a Universal blood donor.

_____

_____

(2 marks)

e. (i). Name any **two** organs in the human body that can be transplanted

_____

_____

(2 marks)

(ii). what problems is likely to occur if organ transplant is carried out without considering blood group

_____

(1 mark)

3. **Figure** 2 is the diagram of a nerve cell. Use it to answer the question that follow

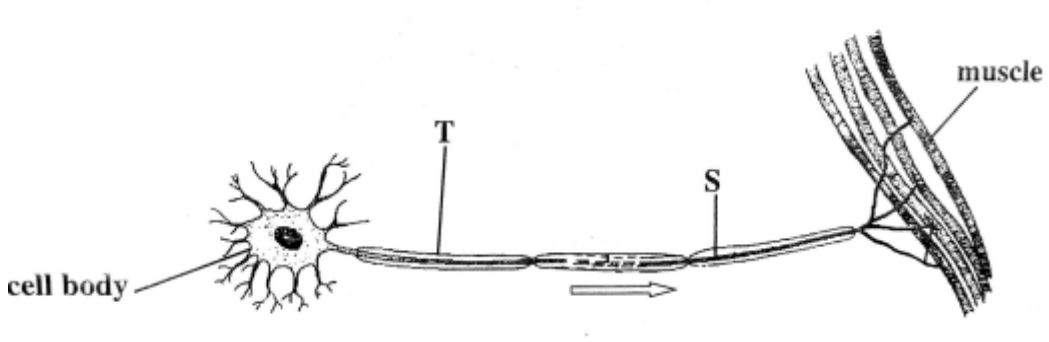

Figure 3

a. Name the parts labelled **T** and **S.**

T_____

S_____

(2 marks)

b. Name the type of nerve cell shown in **Figure 2** above

_____

(1 mark)

c. Explain what could happen if the cell body was damaged

_____

(1 mark)

d. Explain any **one** adaptation that enables the nerve cell to conduct impulse at high speed

_____

_____

(2 marks)

4. a. State **one** way in which the following are assimilated by the body after digestion

i. Fatty acids

_____

_____

(1 mark)

ii. Amino acids

_____

_____

(1 mark)

b. Which **two** abnormal conditions are associated with the circulatory system?

_____

_____

(2 marks)

Continued/...

c. Give **two** reasons why the placenta is important during Pregnancy.

_____

_____

_____

_____

(2 marks)

d. A student measured her pulse rate before and after an exercise .It was observed that the pulse rate increased after an exercise. Give a reason for the increase in pulse rate.

_____

_____

_____

_____

(2 marks)

5. **Figure 3** is a diagram representing a cross section of a leaf. Use it to answer question that follow

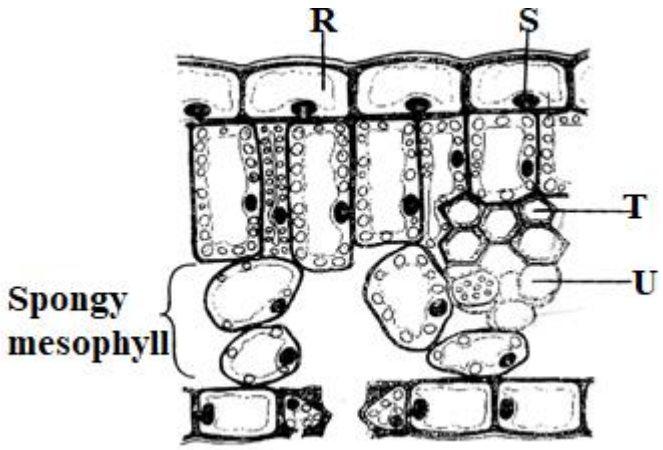

Figure 3

a. (i) Name the parts labelled **R** and **S**

R_____

S_____

(2 marks)

Continued/...

(ii) Which tissue is the main site for photosynthesis in the leaf?

_____

(1 mark)

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

_____

(1 mark)

c. State **two** structural differences between parts marked **T** and **U**

_____

_____

(2 marks)

d. Explain **two** adaptations of part marked **U** for its function

_____

_____

_____

_____

_____

(4 marks)

6. a. Name **one** organelle in which cellular respiration occurs.

_____

(1 mark)

b. State **two** ways how anaerobic respiration is different from other types of respiration.

_____

_____

_____

_____

_____

(2 marks)

Continued/...

c. In a certain plant species, the leaves may be pure green, pure white or variegated (white and green patches).When two plants with variegated leaves were crossed, a total of **84** offspring were produced of which **21** were green, **42** were variegated and the remaining **21** died soon after germination.

(i). Using **G** to represent allele for green colour and **H** to represent allele for white colour, draw genetic diagram of the cross breeding between two plants with variegated leaves, Indicate genotypes of parents and offspring.

(3 marks)

(ii). State the genotype of offspring that died soon after germination.

_____

(1 mark)

(iii). Explain why these offspring died.

_____

_____

_____

(2 marks)

Continued/...

d. (i) State **two** ways in which transpiration is important to plants

_____

_____

(2 marks)

(ii) Explain **two** factors that affect the rate of transpiration

_____

_____

_____

_____

(4 marks)

7. **Figure 4** below is a diagram showing the wing of a bat labelled A and the front leg of a rabbit labelled B. Use it to answer the question that follow

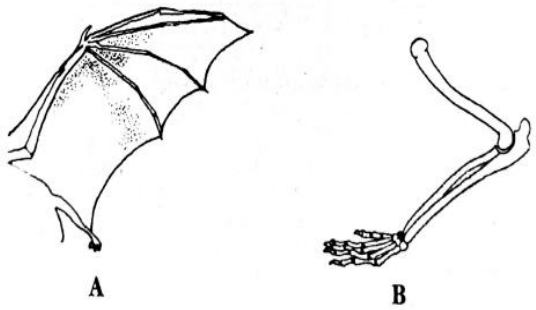

Figure 2

a. Give two structural differences between wing A and leg B

_____

_____

(2 marks)

Continued/...

b. (i) What type of evidence of evolution is shown in **Figure 2**?

_____

(1 mark)

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

_____

_____

(2 marks)

8. a. Define the term Bio technology.

_____

_____

(1 mark)

b. State how Bio technology is used in the following:

i. Sewage treatment

_____

_____

(1 mark)

ii. bread making

_____

_____

(1 mark)

Continued/...

c. Figure 5 below is a diagram of an organism. Study the figure and answer the questions that follow

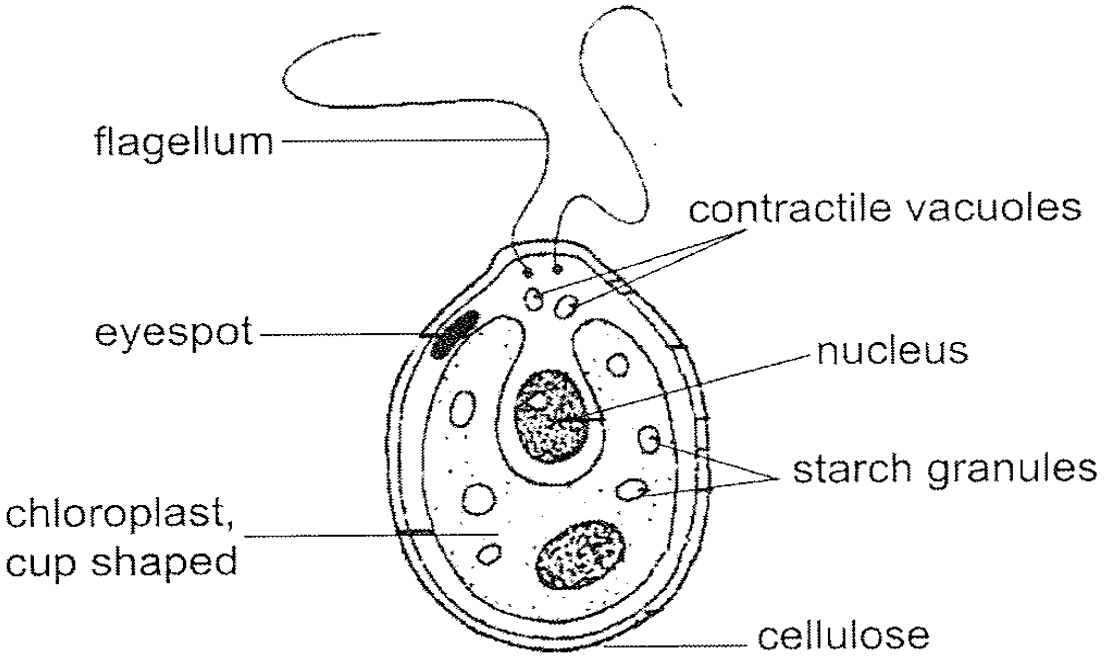

Figure 1

Why is the organism plant like and animal like?

_____

_____

_____

(2 marks)

9. a. State the function of the following nutrients in plants.

i. Potassium

_____

_____

(1 mark)

Continued/...

9. (Continued)

ii. Iron

_____

_____

_____

(1 mark)

b. Give **one** structural difference between Xylem and Phloem tissues

_____

_____

(2 marks)

c. State **two** factors that affect enzyme activity.

_____

_____

_____

(2 marks)

10. a. Explain **one** adaptation of the bird for locomotion.

_____

_____

(2 marks)

b. Mention **two** flight movements that take place in bird locomotion.

_____

_____

(2 marks)

c. Explain how the shape of the wing helps to generate lift in the bird.

_____

_____

_____

(2 marks)

Continued/...

Section B (30 Marks)

Answer **all** the **three** questions in this section. Your answers should be in an essay form.

11. Explain any **five** adaptations of xerophytes to their environment.

(10 marks)

Continued/...

12. Describe how the heart works.

(10 marks)

Continued/...

13. Explain any **five** problems associated with nervous system.

(10 marks)

END OF QUESTION PAPER

NB: This paper contains 15 pages