

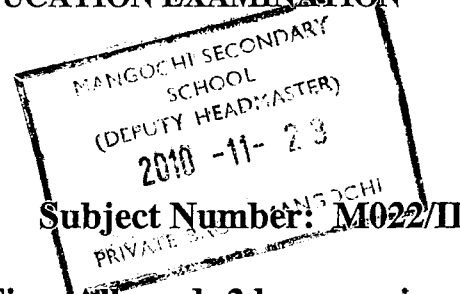


EXAMINATION NO: _____

THE MALAWI NATIONAL EXAMINATIONS BOARD

2009 MALAWI SCHOOL CERTIFICATE OF EDUCATION EXAMINATION

BIOLOGY



Wednesday, 7 October

Time Allowed: 2 hour sessions
8:30 am onwards

PAPER II

(40 marks)

Practical

Instructions

1. This paper contains 6 pages. Please check.
2. Write your **Examination Number** at the top of this page and on every sheet.
3. Answer **all** the **four** questions in the spaces provided in the question paper. The maximum number of marks for each answer is indicated against each question. A pencil should be used for all drawings.
4. 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			



1. You are provided with the following:

- 1 bean seed marked **G**
- 1 soaked maize seed marked **H**
- 1 razor blade or scalpel
- dilute iodine solution

a. (i) Measure the longest axis of specimen **G** and record its length in millimetres.

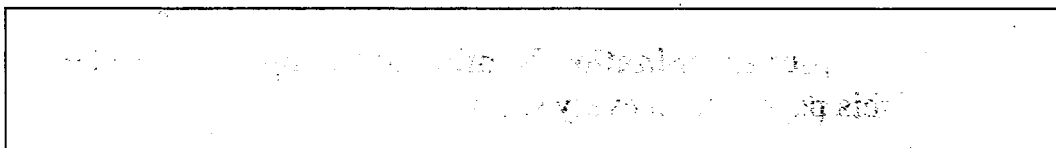
_____ (1 mark)

(ii) Draw specimen **G** and label any **two** parts.



(3 marks)

(iii) Calculate the magnification of your drawing. Show your working.



(3 marks)

b. Place specimen **H** flat on the bench and cut it down the middle lengthwise into two separate parts. Apply one or two drops of dilute iodine solution to one of the cut surfaces.

(i) Describe the results obtained.

(2 marks)

(ii) What conclusions can you make from these results?

(2 marks)

Continued/...

2. Figure 1 shows diagrams of two cells, X and Y. Use it to answer the questions that follow.

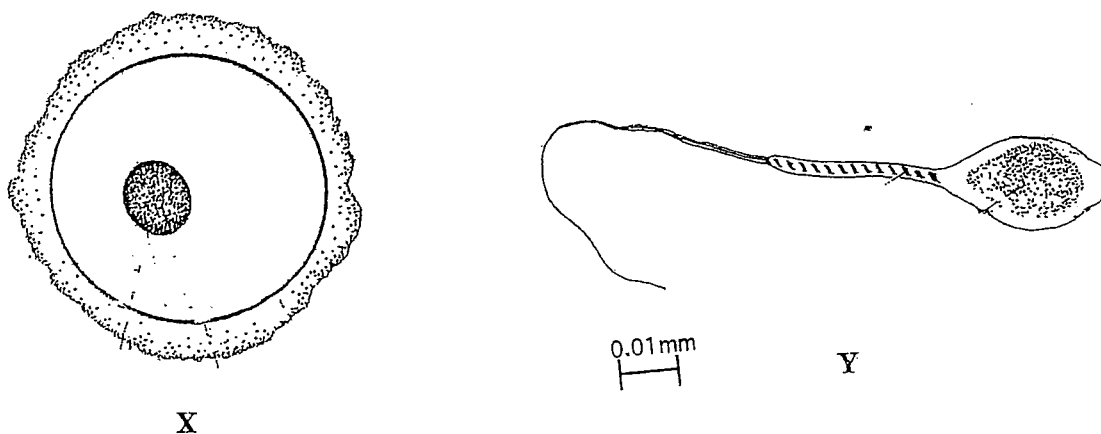


Figure 1

- a. In the table provided, write down **two** structural differences between the two cells.

Cell X	Cell Y

(2 marks)

- b. State any **two** possible causes of genetic variation in the two cells.

(2 marks)

- c. Explain any **two** adaptations of cell Y to its function.

(i) _____

(ii) _____

(4 marks)

- d. Using the scale provided, calculate the actual length of cell Y.

(4 marks)

Continued/....

3. The **table** below shows the constituents of edible portions of certain foods. Use it to answer the questions that follow.

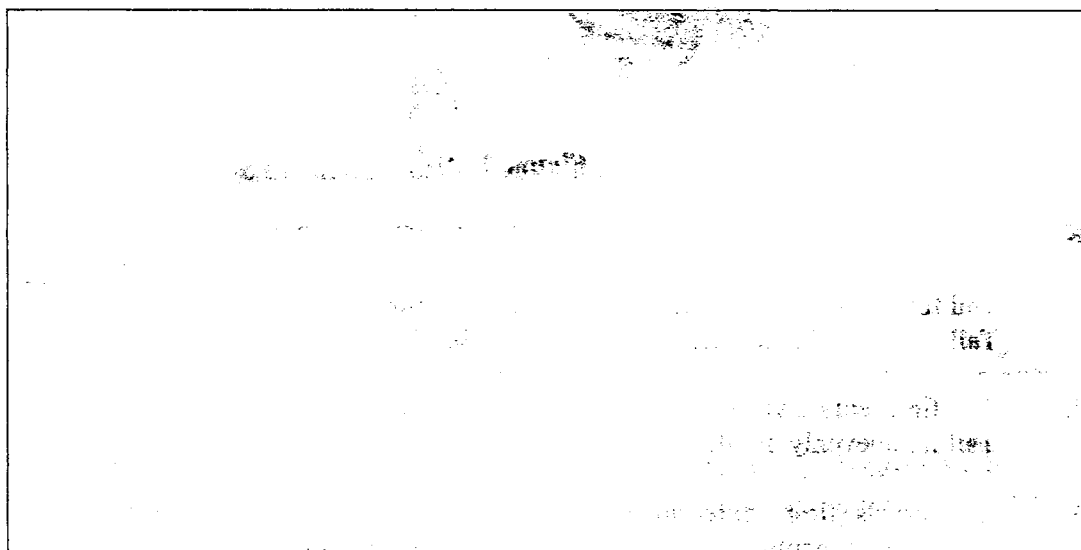
Food	Protein (g)	Fat (g)	Carbohydrate (g)
Rice	10	4	70
Potatoes	8	6	15
Peanuts	30	48	8
Corn	10	5	67
Fish	23	3	-
Pork	15	42	-

Given that:

1 g of protein and 1 g of carbohydrate each gives 17 KJ of energy

1 g of fat gives 39 KJ of energy

- a. Calculate the energy value of rice.



(8 marks)

- b. What is the advantage of eating peanuts over corn for growing children?

(1 mark)

Continued/...

3. (Continued)

- c. (i) Which food is suitable for a person who would like to lose weight?

(1 mark)

- (ii) Give a reason for your answer to 3. c(i).

(1 mark)

4. Figure 2 represents five different types of fish. Use the key provided to identify the fish.

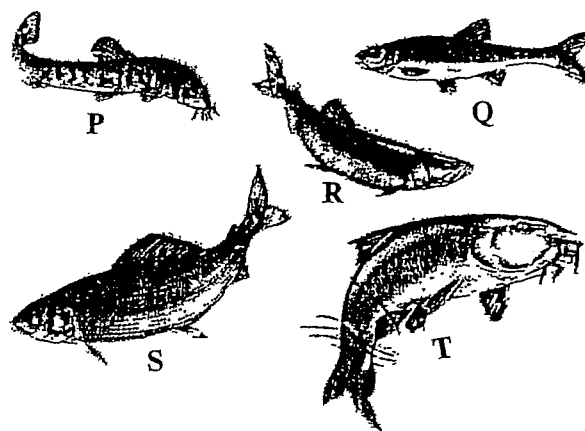


Figure 2

Key:

1. Tail fin undivided *Noemacheilus barbatulus*
Tail fin divided See 2
2. Tail fin evenly divided *Phoxinus phoxinus*
Tail fin unevenly divided See 3
3. Has barbels (fleshy extensions)
at corners of mouth *Barbus barbus*
Has no barbels at corner of mouth See 4
4. Has more prominent dorsal fins *Thymallus thymallus*
Has less prominent dorsal fins *Osmerus eperlanus*

Continued/...

4. (Continued)

- a. Write down the name of the fish represented by each letter.

P: _____

Q: _____

R: _____

S: _____

T: _____

(5 marks)

- b. Name the structure used for gaseous exchange in organism T.

(1 mark)

END OF QUESTION PAPER

NB: This paper contains 6 pages.