

THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL  
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

033/2A

BIOLOGY 2A  
ALTERNATIVE A PRACTICAL  
(For Both School and Private Candidates)

TIME: 2 Hours 30 Minutes

2006/10/17 a.m.

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**Instructions**

1. This paper consists of three (03) questions.
2. Answer two (02) questions including question number 1.
3. Each question carries 25 marks.
4. Electronic calculators are **not** allowed in the examination room.
5. Except for diagrams which must be drawn in pencil all writings should be in blue/black ink or ball point pen.
6. Cellular phones are **not** allowed in the Examination room.
7. Write your Examination Number on every page of your answer booklet(s).

1. You have been provided with solutions X and Y.

(a) Design and carry out experiments to identify the food substance(s) present in solutions X and Y.

Record your experimental work as shown in table 1 below,

Table 1

Test for	Procedure	Observations	Inferences

(b) Name the enzymes concerned with the hydrolysis of food substances identified in solution X. Write an equation for each hydrolysis in a mature human being.

2. You have been provided with two large test tubes marked A and B. Each test tube contains a small amount of solution Z. Close each test tube with a stopper connected to a straw or glass tube and rubber tube as shown in figure 1 below.

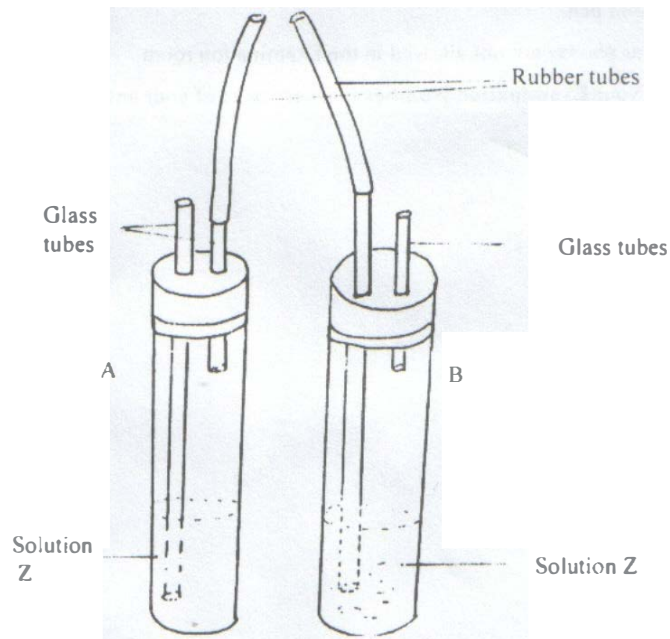


Fig. 1

Put the ends of both rubber tubes at the same time in your mouth and breath in and out gently through the tubes for about 15 seconds

Notice the test tube which bubbles when you breath out and the one which bubbles when you breath in

If after 15 seconds there is no difference in the appearance of solution Z in the two test tubes continue breathing through them for another 15 seconds until you notice some changes in solution Z.

- (a) (i) What changes do you notice in each test tube?
- (ii) What is solution Z?
- (iii) What was the aim of the experiment?
- (iv) What is the name of the process being studied?

(b) What do the changes in solution Z indicate?

- (c) Name the gas which
  - (i) is exhaled
  - (ii) is inhaled
  - (iii) brought about changes to solution Z

(d) What can you conclude from this experiment?

3. Study the organisms Q, R, S, T and V.

(a) Identify specimens Q, R, S and V by their common names

(b) Write down the differences between specimens Q and R with respect to

- (i) type of storage organ
- (ii) propagation

(c) Specimens S and T have some similarities and differences. List down their

- (i) similarities
- (ii) differences

(d) (i) What is the economic importance of V to human beings?  
(ii) In which kingdom do specimens V and S belong?