

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

033/2
BIOLOGY 2
ALTERNATIVE TO PRACTICAL
(For Both School and Private Candidates)

TIME: 2 Hours 30 Minutes

Tuesday November 11, 2003 a.m.

Instructions

1. This paper consists of FIVE (5) questions.
2. Answer ALL questions.
3. Each question carries 10 marks.
4. Electronic calculators are not allowed in the examination room.
5. Cellular phones are not allowed in the examination room.
6. Write your Examination Number on every page of your answer booklet(s).

1. Juma was feeding his child continuously with marshed potatoes and eggs. The child's health kept on deteriorating. The following symptoms developed in the child:

- cracked skin
- bleeding gums
- night blindness.

(a) Name the food substances you think were present in the child's diet.

(b) Design an experiment that you would carry out to investigate the type of food substances present in the food of Juma's child. Using a table as shown below write down the experimental work which leads to the identification of the food substances.

Inference	Observation	Procedure	Test

Table 1

(c) Name one natural food in each case that may be fed to the child to prevent

(i) bleeding gums

(ii) night blindness and cracked skin.

(d) Name the vitamin(s) whose deficiency results in

(i) night blindness and cracked skin

(ii) bleeding gums.

Three vacuum/thermos flasks A, B and C were set up as shown in fig. 1 below. The temperature of each flask was noted at the beginning of the experiment each day for five (5) days.

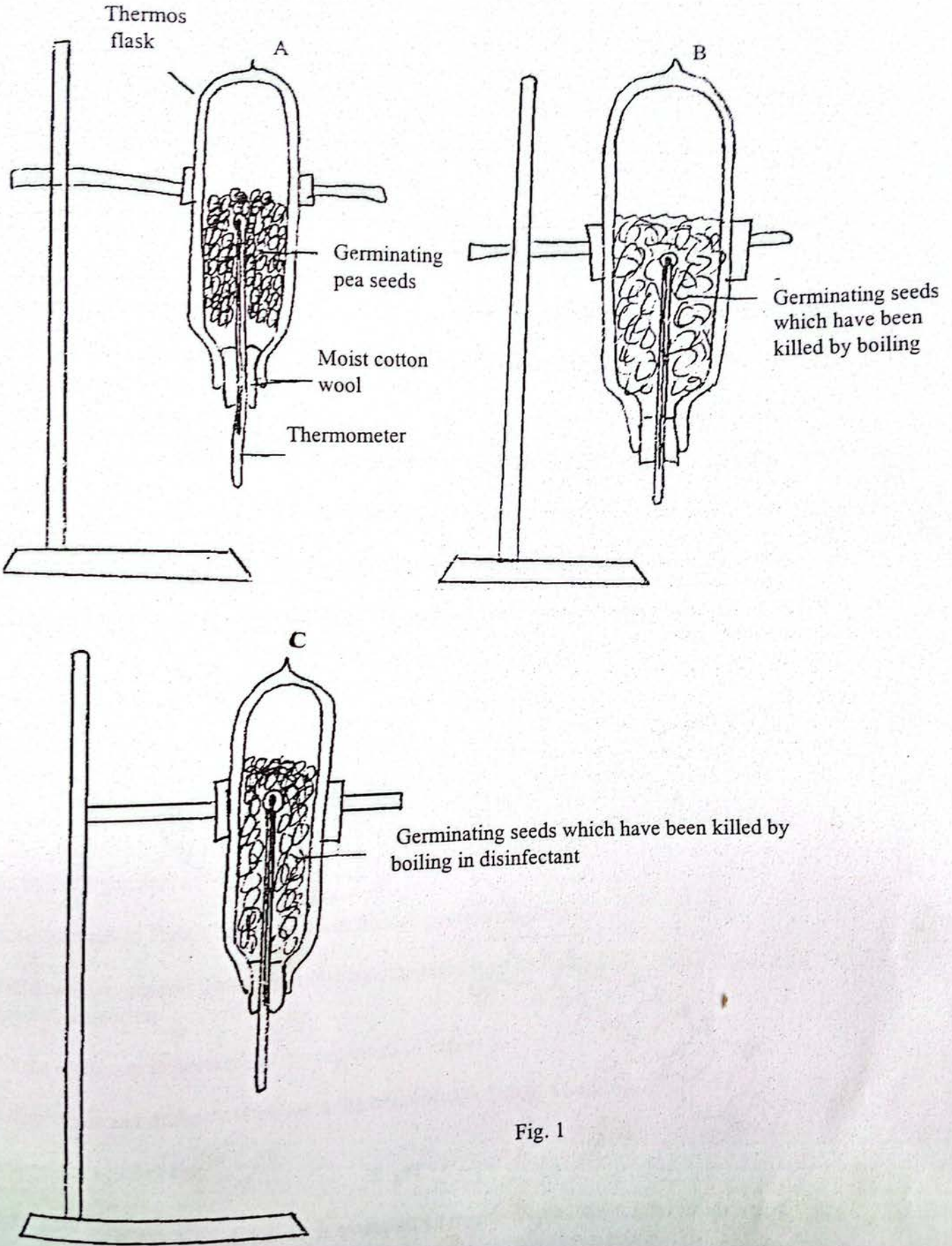


Fig. 1

	Monday	Tuesday	Wednesday	Thursday	Friday
Flask A Temperature °C	20.0	20.5	23.5	23.7	24.2
Flask B °C	20.0	20.0	24.3	24.5	25.0
Flask C °C	20.0	20.0	20.1	20.0	20.2

Table 2.

- (a) What was the aim of the experiment?
- (b) (i) Name the biological process being investigated in this experiment.
 (ii) Define the process.
- (c) Why did the temperature in flask B rise towards the end of the week?
- (d) (i) What was the purpose of using disinfectant in flask C?
 (ii) Why was it important to use thermos flasks set upside down in this experiment?

3. Figure 2 represents some developmental stages of certain organisms. Study the drawings and answer the questions that follow:

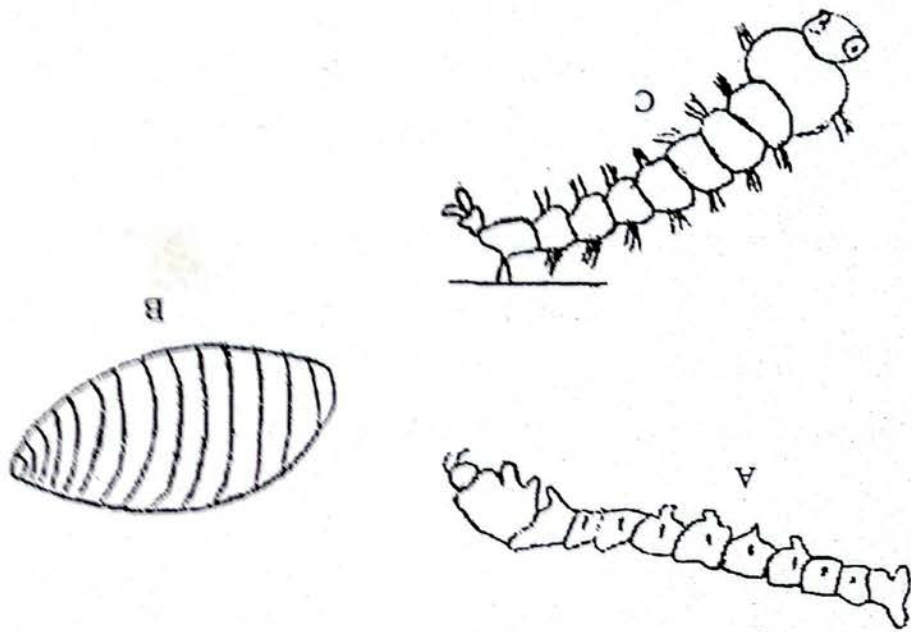


Fig. 2

- (a) Name the developmental stages shown by diagrams A, B and C.
 (b) Give the common name of an organism with developmental stages A, B and C (one organism in each case).

What is the economic importance of the organisms whose developmental stages are represented by each of the drawings A, B and C?

State the stage in which each of the organisms represented by figures A, B and C is destructive.

Study the drawings shown in Figures. 3, 4, 5 and 6, then answer the questions below:

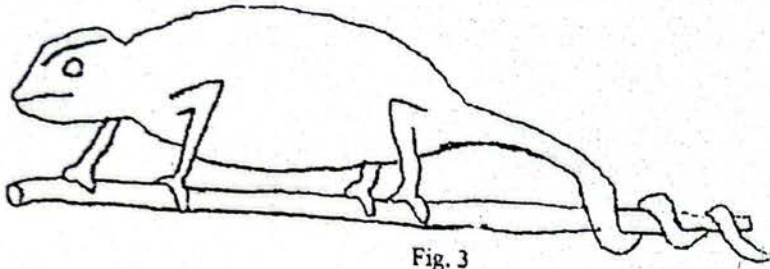


Fig. 3

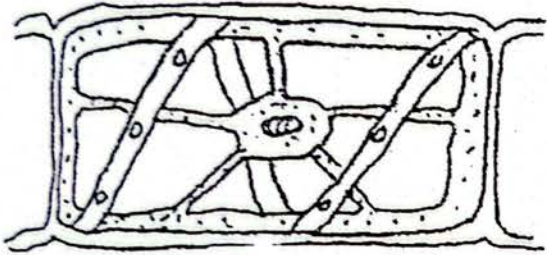


Fig. 4

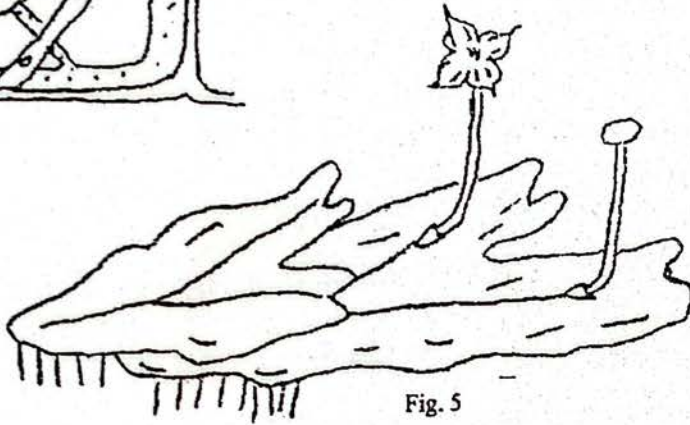


Fig. 5

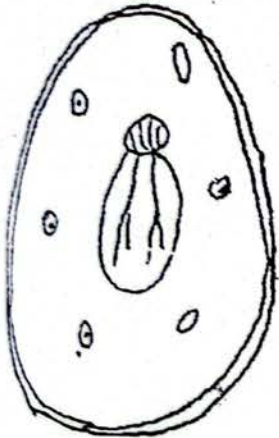


Fig. 6

- (i) Identify the organisms in Figure 3, 4, 5 and 6.
- (ii) Place organisms in Figure 3, 4, 5 and 6 in their respective kingdoms.
- (i) Write down two general features which place the organisms in Figure 3 and Figure 5 into their respective kingdoms.
- (ii) State the economic importance of the organism in Figure 5.
- (i) State the similarities and differences between the organisms in Figure 4 and Figure 5.
- (i) Draw a large diagram of a reflex arc.
- (ii) Label all the parts
- (iii) Using arrows show the path taken by an impulse involved in a simple reflex action.
- (iv) Give examples of reflex actions.