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

133/3A

BIOLOGY 3A
ALTERNATIVE A PRACTICAL
(For Both School and Private Candidates)

Time: 3 Hours **Thursday 09 May 2002 a.m.**

Instructions

1. This paper consists of **THREE (3)** questions.
2. Answer **ALL** questions.
3. Read each question carefully before you start answering it.
4. The mark allocation is indicated at the end of each question.
5. Cellular phones are **not** allowed in the examination room.
6. Write your Examination Number on each page of your answer booklet.

This paper consists of 3 printed pages.

1. You have been provided with specimen B_1. Dissect the specimen to display the digestive system on the **right hand** side of the animal.

Draw a large diagram of the dissection and label the following structures:

(a) oesophagus

(b) crop

(c) gizzard

(d) digestive/mesenteric caeca

(e) midgut

(f) ileum

(g) colon

(h) rectum

(i) digestive – excretory structure. (20 marks)

2. (a) Specimen B_2 is a mixture of different food substances. Design and carry out experiments to identify these foods using the reagents provided. Record your working as shown in the table below:

Food substance tested	Procedure	Observation	Inference

(b) What role is played by each food substance you have identified in B_2, in children?

(c) Excess of one of the food substances identified in B_2 is usually stored in the body.

(i) Name the hormone which influences the conversion of the food substance in a form that can be stored in the body.

(ii) Write a word equation for the process in 2. (c)(i) above.

(iii) In which body organ does the process 2. (c)(i) above occur? (15 marks)

3. You have been provided with specimens B_3, B_4, B_5, B_6, B_7, B_8, B_9 and B_{10}.

(a) Identify the common and class names of specimens B_3, B_4, B_5 and B_6.

(b) State the observable differences between the external and internal features of specimens B_3 and B_6.

(c) Name the classification ranks common to specimens B_3, B_4, B_5 and B_6.

(d) Use the key provided to place each of the specimens B_7, B_8, B_9 and B_{10} in its correct order. (15 marks)

Key to some Insect Orders

1a	Body flattened dorsoventrally ----------	Dictyoptera
1b	Body not flattened dorsoventrally ----------	2
2a	Body covered with hair ----------	Hymenoptera
2b	Body not covered with hair ----------	3
3a	Number of obvious wings 2 ----------	Diptera
3b	Number of obvious wings 4 ----------	4
4a	Outer wings hardened, inner ones soft and membraneous ----------	Coleoptera
4b	Both pairs of wings soft and membraneous -	5
5a	Hind limbs larger than the rest ----------	Orthoptera
5b	Limbs all of the same size ----------	Lepidoptera.