THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

133/3B **BIOLOGY 3B**

(ACTUAL PRACTICAL B)

(For Both School and Private Candidates)

Time: 2:30 Hours **ANSWERS** **Year: 2017**

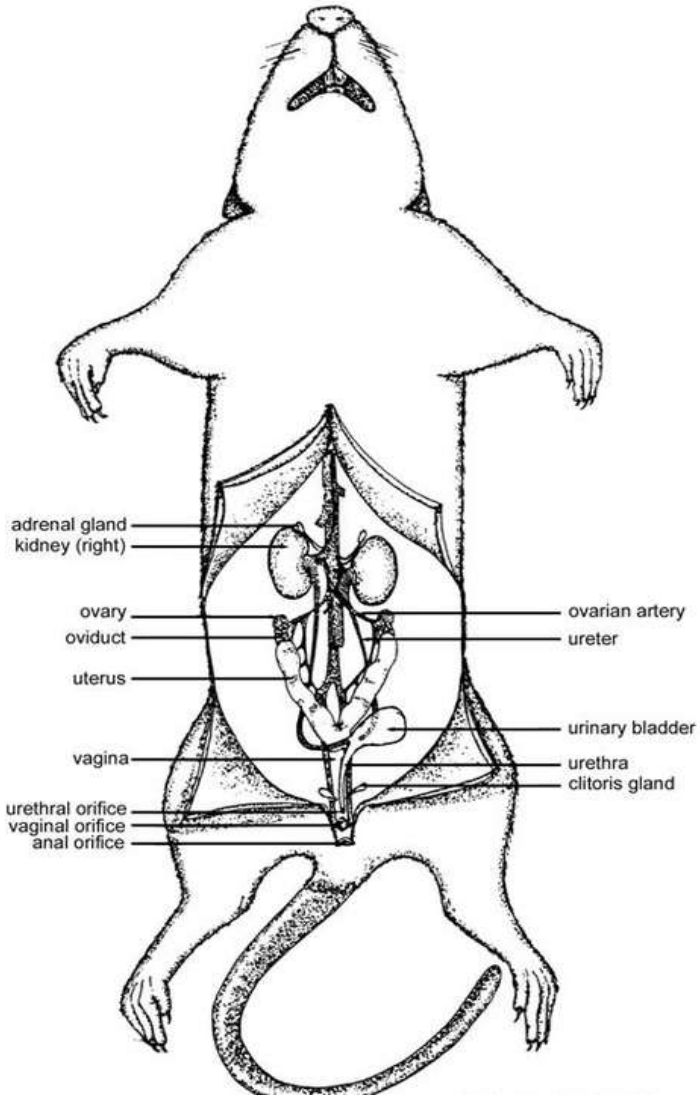
Instructions

1. This paper consists of three questions.

2. Answer all questions.

1. Dissect specimen A_2 in a usual way to fully display the reproductive and excretory system. Pin the ileum to your right hand side.
Leave your dissection properly displayed for assessment.

(a) Draw a large, neat and well labeled diagram of your dissection.



(b)
(i) Identify the sex of the specimen A_2. Give two reasons to justify your answer.

Sex: Male
Reasons:
- Presence of testes
- Presence of vas deferens carrying sperm to cloaca or penis

(If female: ovaries and oviduct present)

(ii) Name the tube which carries the gametes from the area where they are produced to the exit.

Vas deferens (in male) or oviduct (in female)

(iii) Identify the structure responsible for gamete production.

Testes (in male) or Ovaries (in female)

(c)
(i) Identify the structure present in the specimen A_2 which is involved in excretion.

Kidney

(ii) How is the structure you named in (c)(i) adapted to its role?

- Has numerous nephrons for filtration of blood
- Rich blood supply for efficient removal of waste
- Tubular structure allows reabsorption of water and useful solutes
- Long ureter carries urine to bladder or cloaca

2. You have been provided solutions A and B which contain various food substances.

(a) Use the chemicals and reagents provided to identify the food substances present in solutions A and B. Tabulate your work as shown in the following table:

Food Tested	Procedure	Observation	Inference
Solution A	Add Benedict's solution and heat	Brick-red precipitate forms	Reducing sugar present
Solution B	Add Biuret solution	Purple/violet color appears	Protein present

(b) For any two types of food identified in (2)(a) name:
(i) The type of bond which holds up its constituent units.

Reducing sugar (glucose): Glycosidic bond
Protein: Peptide bond

(ii) Enzymes responsible for digestion.

Reducing sugar (starch to maltose to glucose): Amylase, Maltase
Protein: Pepsin, Trypsin

3. You have been provided with specimens M_1, M_2 and M_3.

(a) (i) Identify the specimens M_1, M_2 and M_3 by their common names.

M_1 – Earthworm
M_2 – Grasshopper
M_3 – Cockroach

(ii) Point out three observable features of each of the specimens M_2 and M_3 which enabled them adapt to their environments.

M_2 (Grasshopper):
- Long hind legs for jumping
- Compound eyes for wide vision
- Green or brown body for camouflage

M_3 (Cockroach):
- Flattened body for hiding in crevices
- Antennae for sensing environment
- Wings for gliding or short flights

(b)(i) Classify the specimens M_1, M_2 and M_3 to phylum level.
M_1 – Phylum Annelida
M_2 – Phylum Arthropoda
M_3 – Phylum Arthropoda

(ii) Draw a large, well labeled diagram of the specimen M_1.
The diagram should include:
- Mouth
- Prostomium
- Segmented body
- Setae
- Clitellum
- Anus

(c) Examine the role performed by the specimen M_1.

- Aerates and loosens soil for plant roots
- Increases soil fertility through excreta
- Breaks down organic matter into humus
- Serves as food for birds and other animals