THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

133/3C **BIOLOGY 3C**

(ACTUAL PRACTICAL C)

(For Both School and Private Candidates)

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

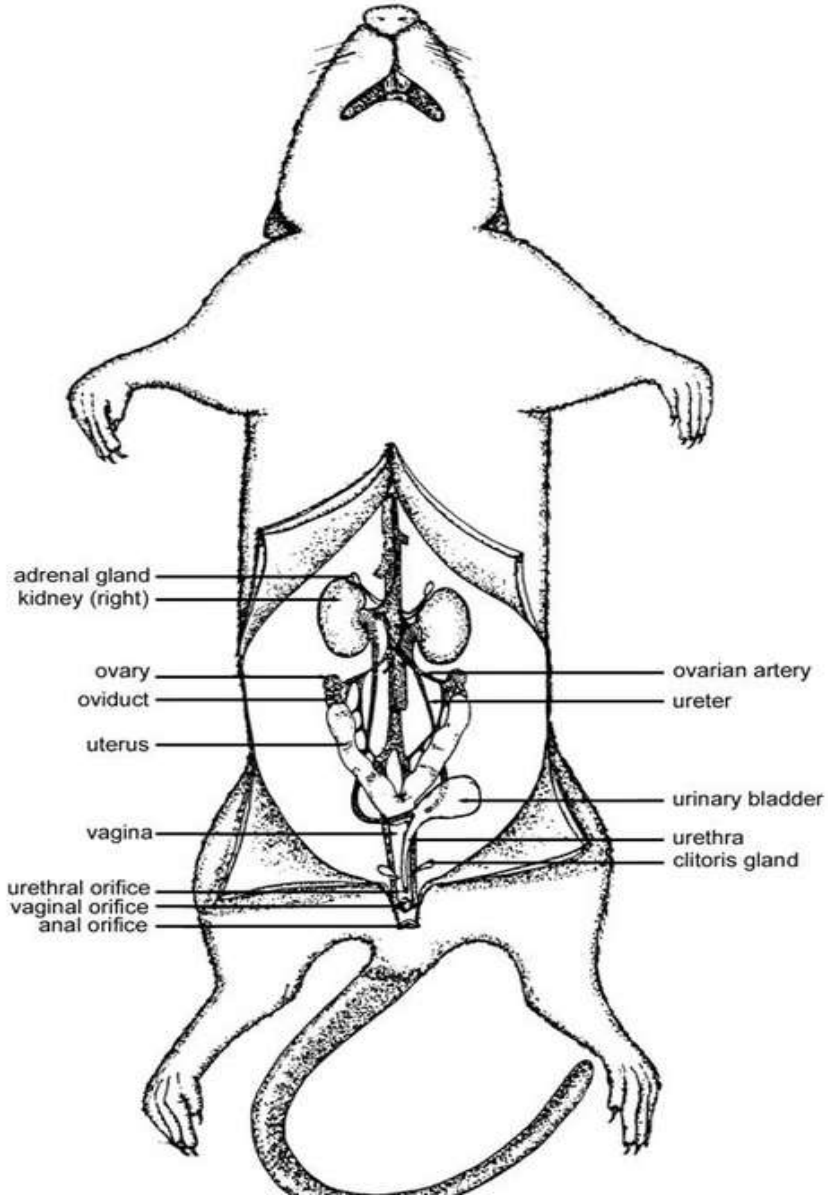
Instructions

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.

(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

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

Vas deferens

(iii) Identify the structure responsible for gamete production.

Testes

(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?

- Contains nephrons that filter blood and remove waste
- Richly supplied with blood vessels for efficient exchange
- Tubular structure enables reabsorption and secretion
- Connects to ureter for passage of urine to bladder

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 showing in following table:

Food Tested	Procedure	Observation	Inference
Solution A	Add Biuret solution	Purple coloration	Protein present
Solution B	Add Benedict's solution and boil for 2 minutes	Brick-red precipitate forms	Reducing sugar present

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

Protein -----> Peptide bond
Reducing sugar -----> Glycosidic bond

(ii) Enzymes responsible for digestion.

Protein -----> Pepsin, Trypsin
Reducing sugar -----> Amylase, Maltase

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
- Camouflaged body color for protection

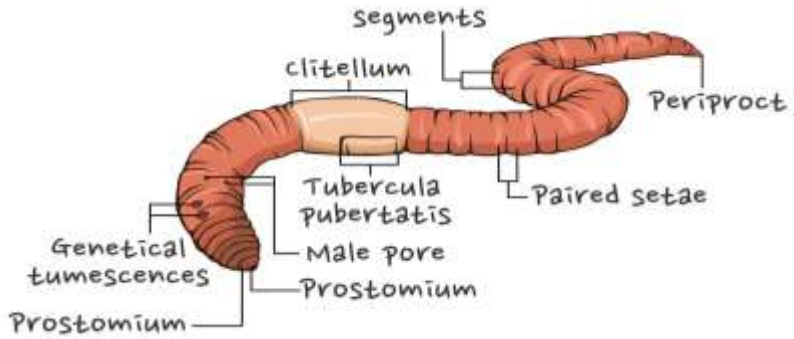
M_3 (Cockroach):
- Flattened body for hiding in crevices
- Antennae for sensing environment
- Wings for gliding or flying short distances

(b) 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

(c) Draw a large, well labeled diagram of the specimen M_1.

- Mouth
- Prostomium
- Clitellum
- Setae
- Segmented body



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

- Aerates soil and improves its texture
- Enhances soil fertility by mixing organic matter
- Aids in decomposition and nutrient recycling
- Serves as food for predators in the ecosystem