THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

033/2B **BIOLOGY 2B**

(ACTUAL PRACTICAL B)

(For Both School and Private Candidates)

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

Instructions

1. This paper consists of two questions.

2. Answer all questions.

1. You are provided with specimen K. Prepare a solution from the specimen K and label it as solution S_1.

(a)(i) Outline procedures you used to prepare the solution.
- Peel specimen K and cut it into small pieces
- Crush using mortar and pestle to form a paste
- Add small amount of distilled water and stir thoroughly
- Filter the mixture using a sieve or muslin cloth to obtain a clear solution S_1

(ii) Use the reagents provided to test all types of carbohydrates in the solution S_1. Record your experimental results as shown in Table 1.

Table 1

Food tested	procedure	observation	inference
starch	2mls of iodine solution to solution S_1 was added	Blue-black color appeared	Starch was present
Reducing sugar	2 mls of Benedict's solution and warm was added into the solution	Solution turned brick-red	Reducing sugar was present
Non reducing sugar	dilute hydrochloric acid, boil, neutralize with sodium hydroxide, then add Benedict's solution and warm	Color changed from blue to red	No-reducing sugar was present

(b) Name the type of food substance(s) identified in solution S_1.
Carbohydrates (starch, reducing sugar, non-reducing sugar)

(c) Name three parts of the alimentary canal where digestion process of the food substance identified in solution S_1 starts until the end product of digestion is formed.
- Mouth
- Duodenum
- Ileum

(d) For each part named in (c):
(i) Mention the gland(s) involved in the digestion of the food identified in S_1.
(ii) Give the name of the secretion produced by each gland named in (i).
(iii) Name the enzymes contained in each secretion named in (ii).
Tabulate your answer for part (d)(i) to (iii) as shown in the Table 2.

Table 2

Part of the alimentary canal	Gland	Secretion	Enzyme
Mouth	Salivary gland	Saliva	Salivary amylase
Duodenum	Pancreas	Pancreatic juice	Pancreatic amylase
Ileum	Intestinal glands	Intestinal juice	Maltase, sucrase

2. You are provided with specimens L, M, N and P.

(a)(i) Identify each specimen L, M, N and P by using their common name.
- L: Rat
- M: Rabbit
- N: Lizard
- P: Frog

(ii) Observe the specimens M, N and P carefully, then classify each specimen into its respective group from Kingdom to Class level.

Specimen M:
- Kingdom: Animalia
- Phylum: Chordata
- Class: Mammalia

Specimen N:
- Kingdom: Animalia
- Phylum: Chordata
- Class: Reptilia

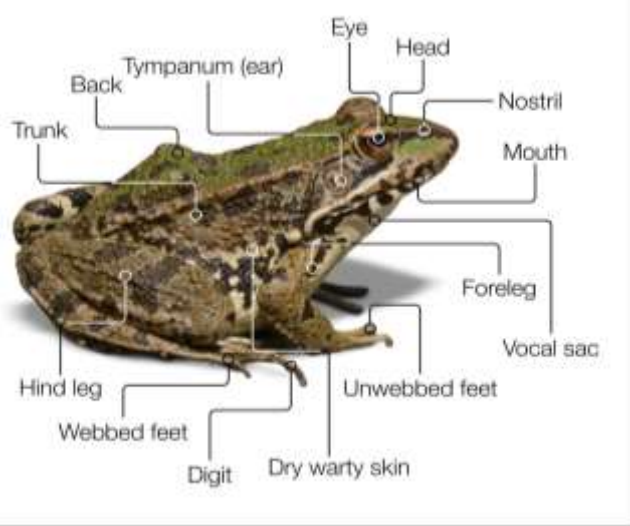
Specimen P:
- Kingdom: Animalia
- Phylum: Chordata
- Class: Amphibia

(b)(i) State four observable features which prompted you and other scientists to place specimen L in the Class Mammalia.
- Presence of fur or hair
- External ears (pinnae)
- Presence of mammary glands
- Gives birth to young ones and feeds them with milk

(ii) Give the reasons to why specimen N was formally placed in the Phylum you mentioned in (a)(ii)?
- It has a vertebral column
- Has a closed circulatory system with a heart
- Possesses lungs for respiration

- Shows bilateral symmetry

(c) Draw a diagram of specimen P and label the structures involved in locomotion only.



(d) With an example, explain why most of the members belonging to the Kingdom in which specimen L belongs are of advantages to other living organisms.
- Mammals such as cows, goats, and sheep provide milk, meat, and skin
- Some (e.g., dogs) provide security and companionship
- Others (e.g., bats) help in pollination and pest control