

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

033/1

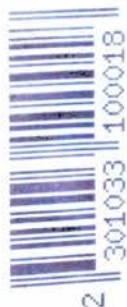
BIOLOGY 1
(For Both School and Private Candidates)

Time: 3 Hours

Year: 2023

Instructions

1. This paper consists of sections A, B and C with a total of **eleven (11)** questions.
2. Answer **all** the questions in the sections A and B and **two (2)** questions from section C.
3. Section A carries **sixteen (16)** marks, section B **fifty four (54)** marks and section C carries **thirty (30)** marks.
4. All writing should be in **blue** or **black** pen, except for diagrams that must be drawn in pencil.
5. Communication devices and any unauthorised materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).



SECTION A (16 Marks)

Answer **all** questions in this section.

1. For each of the items (i) – (x), choose the correct answer from the given alternatives and write its letter beside the item number in the answer booklet provided.

- (i) Which theory postulates that living organisms originated from non-living organisms?
A Chemical evolution B Cosmozoan C Steady state
D Special creation E Spontaneous generation
- (ii) Which part protects lungs from injury and shock?
A Trachea B Rib C Bronchus
D Epiglottis E Diaphragm
- (iii) A boy climbed a coconut tree to harvest coconuts. Unfortunately, he fell down and broke his upper arm. Which bone was broken?
A Ulna B Humerus C Radius
D Femur E Tibia
- (iv) A patient was confirmed suffering from meningitis at Maweni hospital. How can the disease be prevented from spreading?
A Eliminating fleas B Abstaining from sex
C Isolating the patients D Killing water snails
E Cutting long grasses
- (v) If a girl had the menstruation on 12th August 2023, when would she experience the ovulation period, if she has 28 days' cycle?
A 21st September 2023 B 8th September 2023
C 20th August 2023 D 25th August 2023
E 31th August 2023
- (vi) What will be the genotype of the offsprings that will be produced in the first filial generation from a cross between parents of blood group with $I^A I^O$ and $I^A I^B$ genotypes?
A $I^A I^A$, $I^B I^B$, $I^B I^O$, $I^A I^O$ B $I^A I^A$, $I^A I^B$, $I^A I^O$, $I^B I^O$
C $I^A I^B$, $I^O I^O$, $I^A I^O$, $I^A I^A$ D $I^B I^O$, $I^A I^O$, $I^B I^B$, $I^A I^B$
E $I^A I^A$, $I^A I^B$, $I^O I^O$, $I^B I^B$

- (vii) Which control measure would you recommend to a patient diagnosed with diabetes mellitus?
- A Reducing intake of sugary foods B Limiting amount of water intake
C Reducing intake of cholesterol foods D Eating enough starch and water
E Consuming a high fat food
- (viii) Which group represents only the living things?
- A Dog, frog, stone and lizard B Soil, water, mushroom and bee
C Bee, moss, mushroom and frog D Moss, soil, mushroom and lizard
E Lizard, mushroom, water and soil
- (ix) Which food chain represents the correct flow of energy in the ecosystem?
- A Hawk → Grasses → Grasshopper → Lizard
B Grasses → Hawk → Lizard → Grasshopper
C Lizard → Grasses → Grasshopper → Hawk
D Grasses → Hawk → Grasshopper → Lizard
E Grasses → Grasshopper → Lizard → Hawk
- (x) A blood vessel which takes away blood from the glomerulus is narrower than the blood vessel which enters blood into the glomerulus. What does it imply with respect to urine formation?
- A Creates low pressure for efficient filtration of blood
B Increases surface area for selective reabsorption
C Builds up high pressure for ultra-filtration of blood
D Reduces diffusion distance for faster filtration
E Creates high pressure for ultra-filtration of urine

2. Match the functions of the parts of the ear in **List A** with their corresponding parts in **List B** by writing the letter of the correct response beside the item number in the answer booklet provided.

List A		List B	
(i)	Maintains body posture and balance.	A	Pinna
(ii)	Carries nerve impulses from the inner ear to the brain.	B	Eustachian tube
(iii)	Transmits and magnifies sound vibrations.	C	Eardrum
(iv)	Converts sound vibrations to nerve impulses.	D	Auditory nerve
(v)	Collects sound waves from the environment.	E	Auditory meatus
(vi)	Balances pressure on both sides of the tympanic membrane.	F	Ossicles
		G	Cochlea
		H	Semicircular canal

SECTION B (54 Marks)

Answer **all** questions in this section.

3. Suppose your friends have been diagnosed with indigestion problem.
- What would be the major possible causes of this problem? Provide three points.
 - Suggest four measures you would recommend to them to avoid the problem in future.
4. Suggest six ways to minimize the occurrence of miscarriage to the pregnant woman.
5. (a) Draw a diagram of human body and show the location of the thyroid gland, adrenal gland, pancreas gland and pituitary gland.
- (b) Explain the role of the two hormones produced by the pancreas gland.
6. (a) Briefly explain the given terms as used in genetics:
- Sex limited characters.
 - Sex linked characters.
 - Sex influenced characters.
- (b) Differentiate incomplete dominance from codominance.
7. Briefly explain six factors which affect the rate of physical deterioration of human being.

8. (a) Draw a diagram of the reproductive structures of a branch of pine tree and label its two parts.
- (b) Explain three advantages of the pine trees.

SECTION C (30 Marks)

Answer **two (2)** questions from this section.

9. Poor waste disposal creates problems in the environment. In six points, justify this statement.
10. Analyse six features that make the human heart to pump blood efficiently.
11. One of the students was diagnosed with malaria. Suggest five measures to be taken by the victim to avoid that disease in the future.

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033/2A

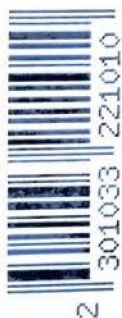
BIOLOGY 2A
(ACTUAL PRACTICAL A)
(For Both School and Private Candidates)

Time: 2:30 Hours

Year: 2023

Instructions

1. This paper consists of **two (2)** questions. Answer **all** the questions.
2. Each question carries **25** marks.
3. All writings should be in **blue** or **black** ink, except diagrams which must be in pencil.
4. Cellular phones and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).



1. You have been provided with specimens **J**, **X**, **Y** and **Z**. Observe the specimens carefully, then answer the following questions:
- (a)
 - (i) Draw a well labeled diagram of specimen **X** with locomotory structures intact.
 - (ii) Why specimen **X** must have locomotory structures? Give four reasons.
 - (iii) Use a knife to cut and totally remove the scales and fins from specimen **X** and explain seven activities that will be impaired, if the specimen is returned to its habitat alive.
 - (b)
 - (i) Study specimen **Y** and **J** and give their common names and the part of the skeleton from which each specimen were taken.
 - (ii) Briefly explain the function performed by specimen **Y** in the human body.
 - (iii) Explain four adaptive features of specimen **Y** which help it to perform its function to the human body.
 - (c)
 - (i) Carefully observe the structure of specimen **J** and identify the type of joint(s) that would be formed to the body of the animal.
 - (ii) Explain how the specimen **J** is adapted for formation of the joint(s) identified in (i).
 - (d) Closely observe specimen **Z** and explain three characteristic features which help it to move in its habitat easily.
2. Carefully study the specimens **G**, **H** and **K** and answer the following questions:
- (a)
 - (i) Identify one feature which may influence the artificial classification system to place both specimens **K** and **H** into the same taxonomic group.
 - (ii) Why scientists may not concur with the use of artificial classification system for grouping specimens **K** and **H** into taxonomic group? Give a reason.
 - (b)
 - (i) Classify each of the specimens **G**, **H** and **K** to Class level.
 - (ii) Account for the features used in the natural classification system to place specimens **G** and **H** to their Classes.
 - (iii) Name four organisms which share the same Phylum with the specimen **K**.
 - (iv) In what ways members that were placed together with specimen **K** in the same Class are advantageous in our daily life?
 - (c)
 - (i) Draw a diagram of specimen **H** and label external features.
 - (ii) Identify two observable features of specimen **H** at the Kingdom level.