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: 2021**

Instructions

1. This paper consists of sections A, B and C with a total of **fifteen (15)** questions.
2. Answer **all** the questions in sections A and B and **two (2)** questions from section C of which question number 13 is compulsory.
3. Section A carries **fifteen (15)** marks, section B **sixty (60)** marks and section C carries **twenty five (25)** marks.
4. All writing should be in blue or black pen, except for diagrams that must be drawn in pencil.
5. Cellular phones and any unauthorised materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

2 101033 100014

SECTION A (15 Marks)

Answer **all** questions in this section.

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

(i) Which respiratory surface is used for gaseous exchange in tadpoles?

A Spiracles B Gills C Lungs
D Skin E Book lung

(ii) Which of the following apparatuses are used for magnifying specimens?

A Hand lens and petri dish B Hand lens and watch glass
C Microscope and watch glass D Microscope and hand lens
E Measuring cylinder and beaker

(iii) Which safety precaution should be taken when administering First Aid to a wounded person?

A Washing hands with soap B Wearing protective gloves
C Calling the ambulance for pick-up D Washing the wound with soap
E Drying the wound with clean cloth

(iv) The following are the characteristics of prokaryotes **except**

A have nuclear materials. B they are microscopic.
C have nuclear membrane. D have cell wall.
E they are single celled organisms.

(v) Which of the following are the end products of digestion when lipids are digested completely?

A Glucose and fructose B Fatty acids and glucose
C Amino acids and fructose D Glucose and glycerol
E Fatty acids and glycerol

(vi) What happens when a person moves from a bright lighted to a dim lighted room?

A Pupil becomes large B Pupil becomes small
C Circular muscles contract D Radial muscles relax
E Radial and circular muscles relax

(vii) Which of the following set of conditions is necessary for seed germination?

A Temperature, soil and water B Water and carbon dioxide
C Water, temperature and oxygen D Water, temperature and food
E Soil, oxygen and water

(viii) The laboratory technician investigated the faeces of a patient and found organisms with flattened segmented bodies. What is the name of the organisms?

A Tapeworms
B Roundworms
C Liver flukes
D Filarial worms
E Planaria

(ix) The following balanced habitat contains grasses, wildebeests, lions and bacteria. What would happen if lions were removed?

A The number of bacteria would remain the same.
B The number of wildebeest would decrease.
C The amount of grasses would decrease.
D The amount of grasses would increase.
E The number of wildebeests would increase.

(x) What will happen if phloem tissue is destroyed in green plants?

A Absorption of water in the plant body will stop.
B Absorption of mineral salts will stop.
C Transport of water and manufactured food will stop.
D Transport of manufactured food will stop. ✓
E Transport of oxygen in the plant body will stop.

2. Match the descriptions of the parts of heart in **List A** with their corresponding terminologies 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)	A chamber of the heart which has relatively thick walls.	A	Auricle
(ii)	A valve that prevents the backflow of blood from the right ventricle to the right auricle.	B	Aorta
(iii)	A valve that prevents the backflow of blood from the pulmonary artery to the right ventricle.	C	Bicuspid
(iv)	A tissue that separates left and right chambers of the heart.	D	Myocardium
(v)	A chamber of the heart which has relatively thin walls.	E	Semilunar
		F	Septum
		G	Tricuspid
		H	Ventricle

SECTION B (60 Marks)

Answer **all** questions in this section.

3. In a car accident many people were injured and felt pains all over their bodies. The victims were given First Aid before taken to hospital. What was the aim of administering first aid to the accident victims? Give four points.

4. Puberty is the transition period from childhood to adulthood where the body undergoes different psychological and physiological changes. Give six physiological changes which occur in boys during puberty.

5. In animals, not every mating leads to fertilization. Give four factors in males which account for this problem.

6. You have visited a school farm and observed that all maize plants have small yellowish leaves and show stunted growth.
   (a) Name four elements which are absent in the soil of the school farm.
   (b) What functions do the named elements play in crop production? Give one function for each element.

7. Differentiate anaerobic from aerobic respiration. Tabulate your answer as shown in following table.

Feature	Aerobic Respiration	Anaerobic Respiration
(i) Site in the cell		
(ii) Substrates involved		
(iii) End products		
(iv) Amount of energy per molecule of glucose		

8. How is the axial skeleton adapted to perform its function? Give three points.

9. How does the skin of a man regulate internal body temperature when the external environment is overheated? Briefly explain by giving three ways.

10. Briefly explain the importance of the four excretory products of plants.

11. Albinism is the hereditary condition where the body lacks melanin pigment in hair, skin and eyes. Briefly explain two problems faced by albinos in their environment and how to overcome those problems.

12. Giving one example in each case, briefly explain how the following provide evidence for evolution.
   (a) Homologous structures
   (b) Cell biology

SECTION C (25 Marks)

Answer **two (2)** questions from this section. Question number **13** is a compulsory.

13. Irresponsible sexual behaviour among youths poses a problem to the Tanzanian community. Justify this statement by elaborating six effects. **(15 marks)**

14. When the bell was rang after break time, students entered into their classrooms. Explain the role of each part of the ear involved in the hearing mechanism which made the students respond by entering the classrooms after the bell was rang. **(10 marks)**

15. Form One students in a certain secondary school were interested to know why it is necessary to study Biology. Assume you are a Biology teacher; educate these students on the importance of studying Biology by giving four points. **(10 marks)**

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

033/2A

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

Time: 2:30 Hours **Year: 2021**

Instructions

1. This paper consists of **two (2)** questions. Answer **all** the questions.
2. Each question carries **twenty five (25)** marks.
3. Except for diagrams which must be drawn in pencil, all writings should be in blue or black ink.
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 are provided with two Irish potatoes, two water trough, boiling water and two watch glasses with sample **A**. Carry out an experiments as directed in procedures (i) - (ix), then answer the questions that follow.

Procedures

(i) Pill the two irish potatoes provided to remove the outer cover.

(ii) Label one of the irish potatoes as specimens **U** and the other as specimen **V**.

(iii) Put specimen **V** into boiling water for 2 minutes, then take it out and cool.

(iv) Using a knife/scalpel, cut the cross section of the specimen **U** to obtain two halves.

(v) Scoop out the central portion of one half of the specimen **U** to make a hole of about 2.5 cm deep from the cut surface. The walls of the hole must be thin (5-8 mm) thick, but take care not to damage it.

(vi) Place a scooped specimen **U** in the trough.

(vii) Put 3 g of sample **A** in the hole of the specimen **U**.

(viii) Using a pipette or dropper, add 1 drop of water to dissolve the sample **A** in a hole of specimen **U**.

(ix) Put water in the trough until specimen **U** is half immersed. Carefully observe the experiment and note the set up and the level of water at the beginning.

(x) Repeat step (iv) and (ix) for specimen **V** that has been boiled and cooled.

(xi) Leave the experiment for 40 minutes, there after observe the experiment again and note the changes.

Questions

(a) What is the aim of the experiment?

(b) Draw a well labeled diagrams to indicate the setup of the experiment;
   (i) at the beginning
   (ii) after 40 minutes.

(c) Identify two changes observed after 40 minutes of the experiment.

(d) Give a reason for the observed changes in the holes and the troughs after 40 minutes of the experiment.

(e) Identify the specimen which acts as a control experiment.

(f) Give the biological terminologies used to identify the concentration of the solution in each of the following:
   (i) Holes of the specimens
   (ii) Water troughs.

(g) Based on the observation made from the experiment, why it is not advised to urinate frequently nearby the plants in the dry season?

(h) What are the two benefits the plant gets by undergoing the process you investigated in the experiment?

You have been provided with specimens **D**, **E** and **F**. Study them carefully and then answer the questions that follow.

(a) (i) What is the common name for each of the specimens **D**, **E** and **F**?
(ii) Why is it important to the scientists to classify specimens **D**, **E** and **F** to their lowest taxonomic groups? Give two reasons.

(b) Classify each of the specimens **D**, **E** and **F** to the Phylum/Division level.

(c) Why are specimens **D** and **F** placed to the Phylum/Division you named in (b)? Give two reasons for each specimen.

(d) What do the processing industries benefits from using the plants in which the specimen **E** was taken? Give three benefits.

(e) (i) Draw a well labeled diagram of the specimen **F**.
(ii) State the habitat of the specimen **F**.
(iii) What are the two advantages of the specimen **F** to the farmer?