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

133/1

BIOLOGY 1
(For Both School and Private Candidates)

Time: 3 Hours **Wednesday, 08th May 2019 p.m.**

Instructions

1. This paper consists of sections A and B with a total of **ten (10)** questions.
2. Answer **all** questions in section A and **two (2)** questions from section B.
3. The marks allocation is indicated at the beginning of each section.
4. Cellular phones and any unauthorized materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

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SECTION A (70 Marks)

Answer **all** questions in this section. Each question carries **10** marks.

1. Study the structure represented by Figure 1 and then answer the questions that follow:

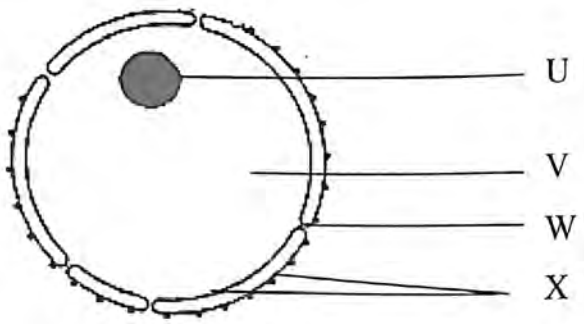

Figure 1

(a) (i) Name the structure represented by Figure 1.
(ii) Identify the parts labeled U, V, W and X.
(iii) What role does each of the parts labeled U, V and X plays?

(b) Enumerate four roles played by the structure represented by the Figure 1.

2. (a) Explain the procedure for testing non-reducing sugar in a given solution.

(b) Analyze the chemical composition of the following food substances:
(i) Lipids
(ii) Proteins.

3. (a) (i) Identify the lowest taxon.
(ii) Illustrate the taxonomic hierarchy of human being.

(b) (i) Why classification of organisms is needed? Give three points.
(ii) Analyze three differences between natural and artificial systems of classification.

4. (a) Identify four main types of receptors and state the role of each.

(b) Describe the effect of the following factor in transmission of nerve impulse:
(i) Axon diameter.
(ii) Myelin sheath.

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5. (a) Study Figure 2 which represent a certain tissue and answer the questions that follow.

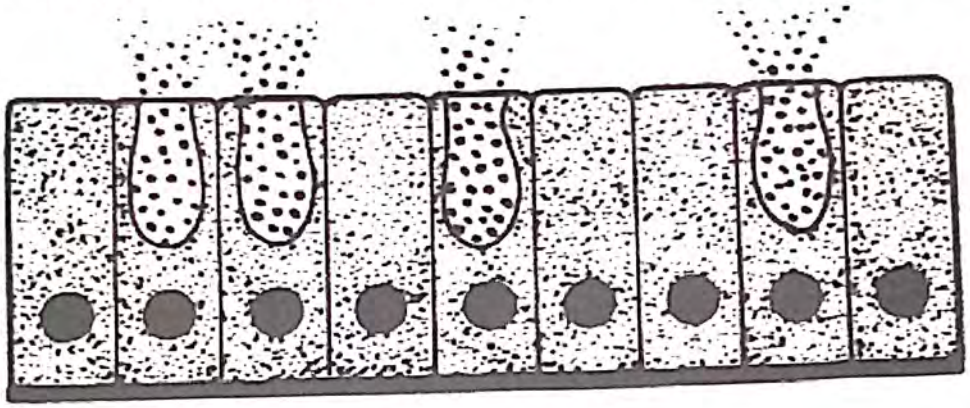

Figure 2

(i) Identify the type of tissue represented by the Figure 2.
(ii) Examine the digestion role played by the tissue.
(iii) Elaborate how the structure of the tissue relates to its function.

(b) (i) Examine three features of the ileum which increases its surface area.
(ii) Why is it an advantage for the ileum to have large surface area? Give two reasons.

6. (a) State the function of each of the following neurons;
(i) Motor
(ii) Sensory
(iii) Relay.

(b) (i) Explain how the receptors of nervous system communicate with effectors.
(ii) Briefly describe how the structure of the synapse ensures that the signals can only pass through it in only one direction.

7. Evaluate the importance of light and dark reaction processes of photosynthesis to life.

SECTION B (30 Marks)

Answer **two (2)** questions from this section. Each question carries **fifteen (15)** marks.

8. (a) State three roles of oestrogen hormones in reproduction.

(b) Identify and describe three stages of birth.

9. With the help of diagram, describe the structure of stomata.

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10. (a) Draw a longitudinal section of a matured carpel at its fertilization stage and indicate the parts which carry out each of the following roles using roman numbers:

(i) Receives pollen grain.

(ii) Transfers pollen grain to the ovule.

(iii) Fuse with male gamete to form zygote.

(iv) Attaches ovule to the ovary.

(v) Protects egg cell.

(vi) Controls growth of pollen tube.

(vii) Fertilize female gametes.

(viii) Fuses with male nucleus to form endosperm.

(b) Describe the events leading to double fertilization in plants.

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