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

133/2

BIOLOGY 2

(For Both School and Private Candidates)

Time: 3 Hours **Wednesday, 16th May 2018 p.m.**

Instructions

1. This paper consists of sections A, B, C and D with a total of **eight (8)** questions.
2. Answer five questions by choosing at least **one (1)** question from each section.
3. Each question carries **twenty (20)** marks.
4. Except for diagrams that must be drawn in pencil, all writing should be in blue or black ink.
5. Cellular phones and any unauthorized materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

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SECTION A

COMPARATIVE STUDY OF NATURAL GROUPS OF ORGANIMS

Answer at least **one (1)** question from this section.

1. (a) Give six reasons to justify that, human being belongs to phylum Chordata.

   (b) Using examples, explain seven advantages of the Kingdom Animalia to human being.

2. (a) (i) Draw the structure of *Escherichia coli* and label five parts.
   (ii) State the role played by each part labeled in 2 (a) (i).

   (b) Explain how the reproduction of bacteria takes place.

SECTION B

REGULATION AND GROWTH AND DEVELOPMENT

Answer at least **one (1)** question from this section.

3. (a) (i) Identify three major nitrogenous excretory wastes in animals.
   (ii) Identify which animals excrete each identified type of nitrogenous wastes in (a) (i) and give three reasons for your answer. Tabulate your answer as shown in the following table:

S/N	Nitrogenous wastes	Animals excreting it	Reasons

   (b) Enumerate five responses which occur in the body when the body temperature is lower than normal.

4. With the help of diagram, describe events which take place in animal cell during the first four mitotic stages.

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SECTION C

GENETICS

Answer at least **one (1)** question from this section.

5. (a) Evaluate three merits of genetic engineering in human being.

(b) If a pure strain of mice with brown-coloured fur are allowed to breed with a pure strain of a mice with grey-coloured fur they produce offspring having brown-coloured fur. If the F_1 mice are allowed to interbreed they produce an F_2 generation with fur colour in the proportion of three brown-coloured to one grey. Carry out genetic crosses to illustrate these results.

6. Study Figure 1 and answer the questions which follow.

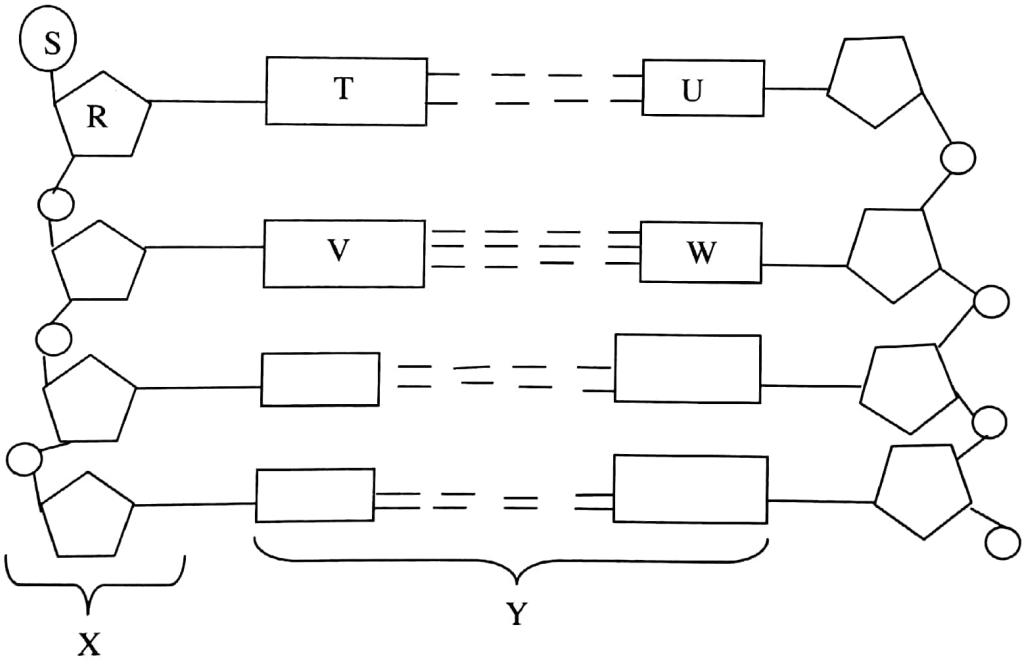

Figure 1

(a) (i) Name the structure represented by Figure 1.
(ii) Identify the structures represented by letters R, S, T, U, V, W, X and Y.
(iii) What is the name given to both structure T and U?
(iv) What is the name given to both structure V and W?
(v) Name the bonds which help in the formation of structure shown in Figure 1.

(b) Enumerate five differences between deoxyribonucleic acid and ribonucleic acid.

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SECTION D

EVOLUTION AND ECOLOGY

Answer at least **one (1)** question from this section.

7. Clearly describe nine procedures used to estimate population for each of the following methods:
   (a) Quadrant method.
   (b) Capture-recapture method.

8. (a) Explain Lamark's theory of evolution.
   (b) Why almost all modern biologists reject Lamarck's theory of evolution?

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