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THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN SECONDARY EDUCATION EXAMINATION

BIOLOGY 1

733/1

Friday, 14th May 2010 a.m.

Time: 3 Hours

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in section A and **two (2)** questions from each of sections B and C.
3. Sections A and B carry 40 marks each and section C carries 20 marks.
4. Cellular phones 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 (40 Marks)

Answer **all** questions in this section.

1. What do you understand by the term "genetic diseases?" Mention four (4) genetic diseases.

2. Consider the metabolic pathway shown below:

   A $\xrightarrow{e_1}$ B $\xrightarrow{e_2}$ C $\xrightarrow{e_3}$ D $\xrightarrow{e_4}$ E

   A represents the substrate and E the end product. e_1 to e_4 are enzymes. How might an excess of E regulate the metabolic pathway?

3. What is the difference between tropisms and reflex actions?

4. Distinguish between passive immunity and active immunity.

5. Give a summary of reactions which take place during aerobic respiration in yeast cells.

6. What do you understand by the following terms used in ecological studies?
   (a) Abiotic factor
   (b) Biotic factor
   (c) Food chain
   (d) Food web

7. Show how ATP in a cell is related to a battery.

8. Explain the following terms as applied in reproduction:
   (a) Gametogenesis
   (b) Spermatogenesis
   (c) Oogenesis
   (d) Gonads

9. Differentiate
   (a) mutation from modification.
   (b) genotype from phenotype.

10. (a) State the difference between alcoholic fermentation and basal metabolic rate.

    (b) List the major products of glycolysis.

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factual information of the text book.

11. Discuss the criteria to use when selecting a quality text book for teaching Biology.

12. Teacher's manual is the document that shows logical sequence of steps to follow to accomplish a certain lesson or experiment.

(a) Elaborate on the main components of this manual and mention the purpose it serves.

Preliminary material
the main body
the end matter

(b) Differentiate a teacher's manual from a teacher's guide.

13. Write an essay on the features of a Biology subject log book.

14. As a biology teacher for form three students, discuss briefly the procedures for planning, organizing and executing a biology field trip in Mikumi National Park for ecological studies.

SECTION C (20 Marks)

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

15. Outline how you would apply basic concepts in the teaching of the topic of reproduction in plants using dicotyledonous flower during biology practical.

16. State how you will prepare for your students the following solutions:

(a) 0.05 M Iodine solution.

(b) 70% alcohol.

17. A form one student wanted her teacher to explain to her the nature of fire. She also wanted to know the types of fire fighting equipment which may be found in Biology laboratories. What would the teacher's response be?

18. (a) What is a laboratory? room/place with appropriate equipment for teaching science or doing scientific work.

(b) State the necessary facilities which a Biology laboratory should have for it to function properly.

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