

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

133/2

BIOLOGY 2
(For Both School and Private Candidates)

Time : 2½ Hours

15 May 2001 p.m.

Instructions

1. This paper consists of sections A, B and C.
2. Answer FIVE (5) questions including at least ONE (1) question from each section.
3. Write your examination number on every page of the answer booklet provided.
4. Except for diagrams, which must be drawn in pencil, all writing must be in blue or black ink/ball point pen.
5. Read each question carefully before you start answering it.
6. Each question carries 20 marks.

This paper consists of 2 printed pages.

SECTION A

1. (a) Distinguish between structural and functional proteins.
 - (b) Draw a large diagram of a typical plant cell as seen under the electron microscope. Indicate, using the letters below, the cellular structures concerned with:-
 - A. cellular respiration
 - B. protein synthesis
 - C. photosynthesis
 - D. transport and modification of cellular proteins and lipids
 - E. transport and provision of surface area for lipid and steroid synthesis
 - F. transport of cellular proteins
 - G. control exchange of materials between cells
 - H. control cell division.
 - (c) What are the possible roles of the cell wall?
2. Outline the distinctive features of the various divisions of the plant Kingdom. How are the members of the division to which a bean plant belongs adapted to terrestrial life?

SECTION B

3. Describe the mode of action of a neurotransmitter at a synapse, including how it is stored and destroyed.
 4. Discuss the sensory and hormonal control of secretions of the digestive system in man.
 5. Describe how various factors help to maintain a constant body temperature in a mammal, irrespective of environmental changes.
 6. (a) Distinguish between oestrus and menstrual cycles.
 - (b) Discuss the hormonal interactions involved in the control of the menstrual cycle in human females.
 - (c) In what ways is menstruation prevented if pregnancy occurs?
7. Identify and describe the vascular tissue in plants and explain how it is adapted for transport of materials.

SECTION C

8. (a) Explain how a quadrat can be used to estimate population size with respect to the three aspects of species distribution namely, species density, species frequency and species cover.
 - (b) In an attempt to estimate the number of grasshoppers in a secluded area, 775 grasshoppers were netted, marked and released. On the second day 1023 grasshoppers were netted and of these 279 had been marked. What was the estimated size of the grasshopper population?
9. Discuss the modern ideas on the "origin of life".