

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: 3 Hours

Thursday, 16th February 2012 p.m.

Instructions

1. This paper consists of **eight (8)** questions in sections A, B, C and D.
2. Answer **five (5)** questions by choosing at least **one (1)** question from each section.
3. Each question carries **twenty (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).

SECTION A

- Explain the general characteristics of viruses.
 - Give reasons to justify the class in which spider belongs.
- Some fungi are useful and others are detrimental to man. Explain this fact and give one example in each case.
 - Explain how saprophytic organisms adapted to its mode of nutrition.

SECTION B

- With reference to the first and second Mendel's laws, describe how the ratios of 3:1 and 1:1 in a monohybrid cross; 9:3:3:1 and 1:1:1:1 in a dihybrid cross are obtained.
- Describe the advantages of applying genetic engineering in plant and animal breeding.
 - Explain why farmers are not advised to plant hybrid seeds such as tomatoes from one season to another.

SECTION C

- Explain how feedback system works to bring about homeostatic conditions in animals.
 - Describe the counter current multiplier system in the loop of Henle.
- Describe the population growth shown in a sigmoid and J-shaped growth curves.
 - Explain the causes of a step-like growth pattern in arthropod.

SECTION D

- Describe three observations and two deductions of Darwin's theory of natural selection.
 - A researcher sprayed DDT regularly for several years to a population of pests. He sampled the population in every year of spraying. When the results were graphically represented the graph obtained was as shown in Figure 1.

Population of insects

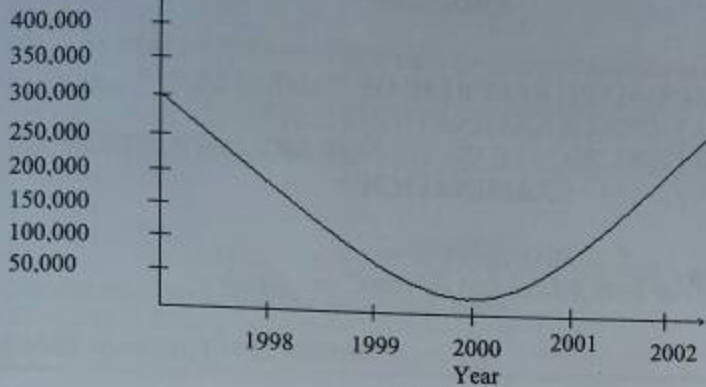


Figure 1

Explain this observation in terms of natural selection.

8. (a) Discuss how smoke and sulphur dioxide in the polluted atmospheric air (troposphere) affects living organisms.
- (b) Explain any six importance of conserving forest in the ecosystem.