

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

134/2

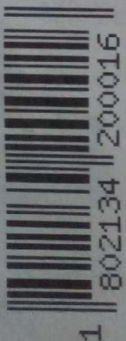
AGRICULTURE 2
(For Both School and Private Candidates)

Time: 3 Hours

Monday, 14th May 2018 a.m.

Instructions

1. This paper consists of sections A and B with a total of **ten (10)** questions.
2. Answer **five (5)** questions choosing at least **two (2)** questions from each section.
3. Each question carries **twenty (20)** marks.
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
CROP SCIENCE AND PRODUCTION

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

1. (a) What is a crop pest? (1 mark)
(b) Briefly explain five cultural methods that are used to control insects. (5 marks)
(c) (i) Account for the four common formulations of insecticides. (4 marks)
(ii) Elaborate five different ways through which pest can arise. (5 marks)
(d) (i) Name two crops which are attacked by *Busseola fusca*. (1 mark)
(ii) Outline two symptoms of the plants attacked by the pest in (d) (i). (2 marks)
(iii) State two cultural methods of minimizing the pest. (2 marks)
2. (a) Identify six roles of plant breeding in crop production. (6 marks)
(b) (i) What is Heterosis? (2 marks)
(ii) Describe five steps used in production of hybrid seed. (5 marks)
(c) Account for three purposes of plant introductions. (3 marks)
(d) (i) What does Pedigree selection mean? (1 mark)
(ii) Give three disadvantages of pedigree selection. (3 marks)
3. (a) Why is a volunteer plant classified as a weed? Give two reasons. (2 marks)
(b) Suggest nine agronomic ways of reducing the effects of weeds to crops. (9 marks)
(c) Chemical application is the most effective way of combating weeds.
(i) Outline five merits of this method. (5 marks)
(ii) Assess four factors affecting the efficiency of this method. (4 marks)
4. (a) Fungi is among the most serious disease agent of crops in tropics causing 80% of plant diseases.
(i) Give four characteristics which make fungi to be important disease causing agent. (4 marks)
(ii) Apart from causing disease to plants, what are other economic importance of fungi? Give three points. (3 marks)
(b) Describe the following:
(i) Localized symptoms
(ii) Growth distortion
(iii) Witches brooms
(iv) Galls and knots
(v) Etiolation (10 marks)

- (c) Nematodes can cause damage to crops through direct mechanical injury during feeding and also production of toxin.
- (i) What is the causative agent of root knot nematode? (1 mark)
 - (ii) List two symptoms and two control measures of root knot nematodes. (2 marks)
5. (a) Explain the meaning of the following terms as they are used in plant diseases:
- (i) Inoculation
 - (ii) Signs
 - (iii) Toxicity
 - (iv) Epidemiology
 - (v) Pellet
- (5 marks)
- (b) Describe damping off in tomatoes under the following headline:
- (i) Causative agent
 - (ii) Two symptoms of the disease
 - (iii) Two control measures
- (5 marks)
- (c) How can the disease be controlled by using the following methods?
- (i) Avoidance
 - (ii) Exclusion
 - (iii) Eradication
 - (iv) Immunization
 - (v) Protection
- (10 marks)

SECTION B

LIVESTOCK SCIENCE AND PRODUCTION

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

6. (a) (i) Define the term animal disease as used in animal health. (2 marks)
- (ii) Mention three causes of disease in livestock. (3 marks)
- (b) Briefly describe six groups of micro-organisms which cause diseases in livestock. (12 marks)
- (c) Name three means of classifying animal disease. (3 marks)
7. (a) (i) Differentiate between a feedstuff and a feed. (2 marks)
- (ii) What do you understand by the term maintenance ration? (1 mark)
- (iii) Account for four factors that affect maintenance requirement of farm animals. (4 marks)
- (b) (i) Briefly explain two roles played by reticulum in ruminant animals. (2 marks)
- (ii) Analyse four microbial activities that take place in the rumen of ruminant animals. (4 marks)
- (iii) Elaborate the functions of gizzard and caecae in the poultry digestive system. (2 marks)
- (c) (i) With two examples for each, give two categories of vitamins basing on their solubility.

- (3 marks)
(2 marks)
- (ii) Identify two sources of vitamin E and one problem associated with its deficiency in animals.
8. (a) Enumerate four factors affecting yield potential of a given species of pasture. (4 marks)
- (b) Suggest three measures that can be taken in order to improve natural pasture in Tanzania. (3 marks)
- (c) (i) What it meant by top dressing as used in pasture management? (2 marks)
- (ii) Why is it important to use top dressing in pasture? Give four reasons. (4 marks)
- (d) (i) Why additives are added in napier grass when making silage? Give a reason. (2 marks)
- (ii) Explain one problem associated with poor forage compaction during silage making. (5 marks)
- (iii) List five characteristics of good quality silage.
9. (a) Define the following terms as used in livestock breeding and improvement:
- (i) Runt
- (ii) Libido
- (iii) Free-martin
- (iv) Dystocia (4 marks)
- (b) Outline four functions of inbreeding in livestock breeding. (4 marks)
- (c) (i) Mention two methods of semen collection from the bull. (2 marks)
- (ii) Examine three semen parameters that have to be evaluated or tested in order to judge its quality before insemination or storage. (6 marks)
- (iii) Enumerate four limitations of artificial insemination as opposed to natural mating. (4 marks)
10. (a) Outline five sustainable agricultural techniques used by farmers to achieve the key roles in protection of crop plants and soil quality. (5 marks)
- (b) Assess three contributions of cover crops in sustainable agriculture. (4.5 marks)
- (c) Briefly explain four effects of crop rotation on agricultural production and sustainability. (6 marks)
- (d) Why modern farming is not sustainable? Give three reasons. (4.5 marks)