THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

134/2 **AGRICULTURE 2**

(For Both School and Private Candidates)

Time: 3 Hours **Year: 2010**

Instructions

1. This paper consists of sections **ten (10)** questions in sections A and B.
2. Answer **five (5)** questions choosing at least **two (2)** questions 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

CROP SCIENCE AND PRODUCTION

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

1. (a) Explain the meaning of the following as used in weed science:
   (i) Annual weed
   (ii) Biennial weed
   (iii) Perennial weed
   (iv) Creeping weed
   (v) Parasitic weed

   (b) Explain five mechanisms by which weeds affect crop yields.

   (c) Describe three cultural and two chemical control methods for parasitic weeds such as Striga.

2. (a) Define each of these crop breeding terms: inbreeding depression, hybrid breakdown, pureline, synthetic variety.

   (b) Describe pedigree and backcross breeding methods. For each, state one advantage and one disadvantage.

   (c) State four characteristics a breeder should consider when developing rice varieties for disease resistance.

3. (a) For each of the following diseases, give causative agent, five symptoms, and two control measures:
   (i) Late blight of potatoes
   (ii) Cassava mosaic

   (b) Describe five signs by which a farmer can detect viral infection in vegetable crops.

4. (a) What are pesticide adjuvants? Explain the roles of each of the following adjuvants: sticker, spreader, emulsifier.

   (b) Outline six safety precautions to take during pesticide mixing, spraying, and disposal of pesticide containers.

(c) Discuss the advantages and disadvantages of using genetically modified crops.
(5 marks)

5. (a) Describe the nature, symptoms, and control of each of these fungal crop diseases:
   (i) Fusarium wilt of bananas
   (ii) Black Sigatoka of bananas
   (iii) Head smut of sorghum
   (iv) Rice blast
   (v) Stem rust of wheat

SECTION B

LIVESTOCK SCIENCE AND PRODUCTION

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

6. (a) Define the following in livestock nutrition: micro-minerals, macro-minerals, vitamin D, fat soluble vitamins.

   (b) Describe two consequences of mineral deficiencies in dairy cattle.

   (c) Explain five environmental factors that affect feed intake in animals.

7. (a) Explain five effects of parasites on livestock health and productivity.

   (b) Describe four methods by which tsetse flies may be controlled in pastoral regions.

   (c) Describe three signs and three preventive measures of Newcastle disease in poultry farming.

8. (a) Describe the roles of the following reproductive organs in the hen in egg formation: infundibulum, magnum, isthmus, shell gland, cloaca.

   (b) List and explain the phases of the oestrus cycle in the cow.

   (c) State four hormones involved in cow reproduction. For each, briefly explain its role.

9. (a) Define balanced ration, maintenance requirement, production requirement.

   (b) A goat has the following feed intake data: eats 5 kg feed containing 80% DM; faeces output 2 kg containing 30% DM. Calculate the digestibility coefficient of the DM.

   (c) Propose six factors to consider when formulating rations for high-producing dairy cows.

10. (a) What is rotational grazing? Describe its benefits for both land and livestock.

    (b) Compare zero grazing with free range grazing: give advantages and disadvantages of each.

    (c) Identify and explain four desirable qualities of pasture grasses in semi-arid regions.