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

034/1 **AGRICULTURAL SCIENCE 1**
(For School Candidates Only)

Time: 2:30 Hours **Tuesday, 23rd October 2012 p.m.**

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A and B and **one (1)** question from section C.
3. Read the instructions under each section carefully.
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 (20 Marks)

Answer **all** questions in this section.

1. For each of the items (i) - (x), choose the correct answer among the given alternatives and write its letter in the answer booklet provided.

(i) Direct benefits from forests can be obtained due to their ability to regulate
A water and charcoal supply
B climate and water supply
C honey and timber supply
D pulp and soft wood supply
E charcoal and wood supply.

(ii) The ratio of the value of exports to the value of imports is referred to as
A terms of trade
B balance of trade
C international trade
D barter trade
E wholesale trade.

(iii) Breaking up the hard soil pan or compacted soil can best be done by
A mouldboard
B disc
C subsoiler
D chisel
E coulter.

(iv) The most commonly used system for commercial poultry rearing for both broilers and layers in Tanzania is
A fold unit
B house and run
C battery cage
D deep litter
E semi-intensive

(v) All of the following equipment are used in bee keeping **except**
A smokers
B veils
C swarm catchers
D press
E secateurs.

(vi) A system of grazing whereby an animal is tied with a rope on the neck or leg and the other end of the rope is tied to a tree or post is called
A controlled grazing
B zero grazing
C tethered grazing
D restricted grazing
E confined grazing.

(vii) Which one of the following is **not** a method of controlling soil erosion?
A over cropping
B cover cropping
C contour cropping
D rotational cropping
E strip cropping.

(viii) A dieting tool in a farm workshop is used for
A Cutting steel
B Cutting pipes
C Cutting threads
D Cutting metal
E Cutting glass.

(ix) Particle density of a soil sample is given as:
A weight of soil over volume of soil
B bulk density over weight of soil
C weight of soil solids over volume of soil solids
D bulk density over percentage pore space
E weight of soil over bulk density.

(x) One of the proper ways of fishing is by use of
A dynamite
B fish-woulding gear
C seine nets
D endosulphan
E fine mersh nets.

2. Match the items in **List A** with the responses in **List B** by writing the letter of the correct response beside the item number in your answer booklet.

LIST A	**LIST B**
(i) *Amaranthus spp*	A Nut grass
(ii) *Cyperus rotundus*	B Forget-me-not
(iii) *Digitaria scalarum*	C Tickberry
(iv) *Cynodon dactylon*	D Wild finger millet
(v) *Pennisetum clandestinum*	E Star gras
(vi) *Eleusine indica*	F Thorn apple
(vii) *Solanum incanum*	G Wandering jew
(viii) *Lantana camara*	H Soddom apple
(ix) *Commelina benghalensis*	I Pig weed
(x) *Striga hermontheca*	J Wild rape
	K Kikuyu grass
	L Black jack
	M Couch grass
	N Black night shade
	O Witch weed

SECTION B (60 Marks)

Answer **all** questions in this section.

3. (a) State three advantages of cultural methods in controlling pests. **(3 marks)**

   (b) Briefly explain six cultural methods of pest control. **(6 marks)**

4. (a) (i) Briefly explain the purpose of using mass methods in teaching agricultural extension.

   (ii) State two advantages and two disadvantages of mass methods in teaching agricultural extension. **(5 marks)**

   (b) Briefly describe the characteristic of the late majority category of innovation adopters in agricultural extension. **(2 marks)**

5. (a) Write down the formula for calculating the annual depreciation of a farm asset using the Straight Line Method. **(2 marks)**

   (b) Complete the following Table by filling in the blanks. Show how each value is obtained.

Asset	**Original Cost**	**Salvage Value**	**Annual Depreciation**	**Number of Years**
Tractor	120,000	10,000	_____	10
Harrow	16,000	_____	200	15
Plough	_____	2,000	150	20
Planter	20,000	6,000	600	_____
Cultivator	17,000	2,000	_____	14

(5 marks)

6. (a) Briefly describe any five mechanical methods of weed control. **(5 marks)**

(b) Study the diagram below (Figure 1) carefully and answer the questions that follow:

Figure 1

(i) Identify the weed by its common and botanical names.
(ii) Briefly explain two measures which have to be taken in order to control the weed identified in (b) (i) above in a field of sorghum. **(3 marks)**

7. (a) Name any four pure breeds of dairy cattle which are found in Tanzania. **(2 marks)**

(b) Briefly explain five factors that limit dairy industry in Tanzania. **(5 marks)**

8. (a) Differentiate between nitrification and nitrogen fixation. **(4 marks)**

(b) (i) Without using chemical formula, explain briefly how nitrification and nitrogen fixation occur in the soil.
(ii) Examine the importance of nitrification and nitrogen fixation in crop production. **(4 marks)**

9. Study the diagram in Figure 2 below carefully and answer the questions which follow:

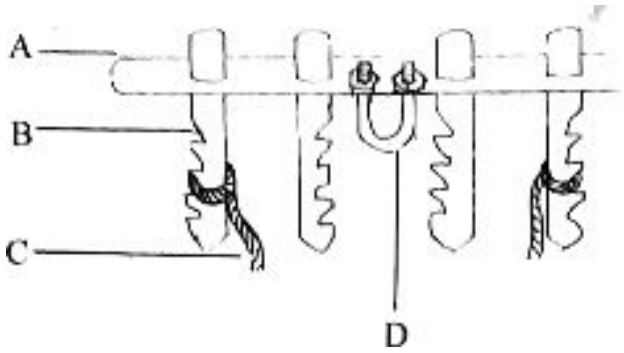

Figure 2

(a) (i) What does Figure 2 represent?
(ii) Briefly explain the use of the device represented by Figure 2 above. **(3 marks)**

(b) (i) Name the parts labeled A to D in Figure 2 above.
(ii) What attachment is usually linked to D?
(iii) State the function of the attachment named in (ii) above. **(4 marks)**

10. (a) What do you understand by the term agro-forestry? **(1 mark)**

(b) Explain briefly six advantages of agro-forestry in agricultural production. **(6 marks)**

SECTION C (20 Marks)

Answer **one (1)** question from this section.

11. Suggest eight points to be considered when selecting a site for a nursery and explain six important husbandry practices to be done for good and high yield of the vegetable garden.

12. Result demonstration and method demonstration are among the methods by which farmers learn various innovations. Compare and contrast the two methods.

13. Account for six ways in which soil loses its fertility and explain five agronomic practices that can be used to maintain soil fertility.