

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

034/1

**AGRICULTURAL SCIENCE 1**  
(For Both School and Private Candidates)

**Time: 2:30 Hours**

**Wednesday, 20<sup>th</sup> November 2013 p.m.**

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**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).

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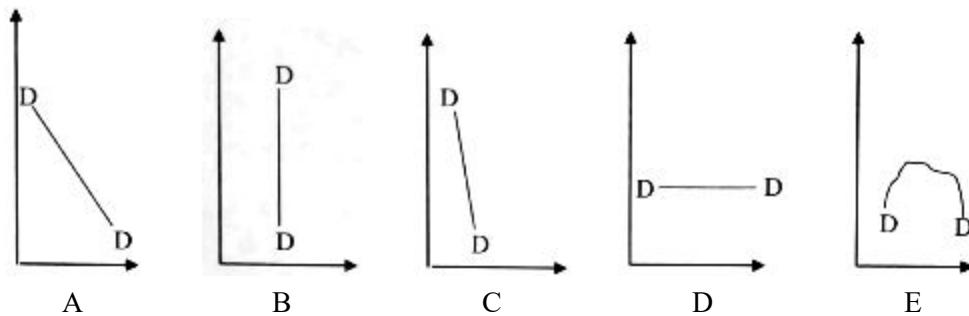
## SECTION A (20 Marks)

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 beside the item number in the answer booklet provided.

- (i) In surveying, horizontal distances can easily be measured by using  
A odometer                                      B hydrometer                                      C metre ruler  
D micrometer                                      E hygrometer.

- (ii) Which graph among the following describes Elastic Demand curve?



- (iii) Category of farmers that are regarded by members of their community as models of what a good farmer should be are called  
A early adopters                                      B innovators                                      C late majority  
D late adopters                                      E early majority.

- (iv) Iron injection is administered to piglets in order to control  
A swine fever                                      B diarrhea                                      C anemia  
D pneumonia                                      E scours.

- (v) Maize streak in maize plant is caused by  
A *Chilo suppressalis*                                      B *Piricularia spp*  
C *Puccinia spp*                                      D *Ciadulina mbila*  
E *Quelea spp.*

- (vi) The organism which causes Rinderpest is  
A bacterium                                      B virus                                      C tick  
D mycoplasma                                      E protozoan.

- (vii) A system of artificial regeneration of trees involving growing of forest trees together with agricultural crops in early stages is known as  
A coppice                                      B regrowth                                      C taungya  
D silviculture                                      E regeneration.

- (viii) The tool used in wood work is  
 A spirit level                                      B jack plane                                      C plumb bob  
 D flat file    E brick hammer.
- (ix) The appropriate method for controlling gully erosion that has already occurred in an area is  
 A ridging    B stripping                                      C terracing  
 D fallowing    E contouring.
- (x) The raising and caring of forest trees is called  
 A agriculture    B pisciculture                                      C apiculture  
 D forciculture    E silviculture.

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.

LIST A	LIST B
(i) Incoordination, watery diarrhea and inflammation of cloaca.	A. Fowl plague
(ii) Characteristic gurgling and low production of eggs that are small with rough thin shells.	B. Fowl flue
(iii) Anorexia, depression, wasting and sudden death.	C. Infectious Bronchitis
(iv) Nasal discharge, swelling of face and sneezing.	D. Fowl pox
(v) Loss of voluntary muscle sensation in limbs and wings, blindness and cancer of internal organs.	E. Bacillary White Diarrhea (BWD)
(vi) Blackish warts on combs and wattles.	F. Coccidiosis
(vii) Discharge of mucous from mouth or nostrils and stand with the neck twisted.	G. Fowl typhoid
(viii) Watery yellow and smelling diarrhea, fast and noisy breathing and sudden death.	H. Infectious coryza
(ix) Swollen wattles and combs, edematous head and ruffled feathers.	I. Fowl paralysis
(x) Blood stained faeces and high mortality.	J. Salmonellosis
	K. Pullorum
	L. New castle
	M. Gumboro
	N. Fowl cholera
	O. Avian leukosis

## SECTION B (60 Marks)

Answer **all** questions in this section.

3. (a) In what machines or implements are the following parts located?
- |                  |                    |
|------------------|--------------------|
| (i) Land side    | (vi) Pitman arm    |
| (ii) Scraper     | (vii) Ledger plate |
| (iii) Share      | (viii) Chute       |
| (iv) Frail       | (ix) Swath board   |
| (v) Furrow wheel | (x) Swath stick    |
- (5 marks)**
- (b) State the function of each part in (a) **(5 marks)**
4. (a) *Tilapia melanopleura* is recommended for fish culture in fresh warm water ecology. Explain briefly six reasons for their suitability. **(3 marks)**
- (b) (i) State two criteria used for selecting a good site for fish pond.  
(ii) Give three points to show the role of fish industry in Tanzania. **(5 marks)**
5. (a) Elaborate the statements that:  
(i) 'Agricultural extension is a continuous out of class educational process'.  
(ii) 'Agricultural extension is a partnership between the farmer, the government and the agricultural institutions.' **(2 marks)**
- (b) Outline two limitations of individual methods of teaching in extension. **(2 marks)**
6. Mr. Mtegwa is a poultry farmer. His birds are kept in a well ventilated and aerated room with the floor well covered with saw dust. The birds are confined throughout their life, but they are supplied *ad-libitum* with feed, water, laying nests and perches.
- (a) What system of poultry rearing does Mr. Mtegwa use in keeping his birds? **(1 mark)**
- (b) Account for six disadvantages of the system used by Mr. Mtegwa in rearing his poultry. **(6 marks)**

7. The crop plant in Figure 2A is drying up and dying as a result of being attacked by the pest shown in Figure 2B.



**Figure 2A**



**Figure 2B**

- (a) (i) Identify the pest in Figure 2B by its common and scientific names. **(1 mark)**  
(ii) Suggest two control measures for the pest in Figure 2B. **(2 marks)**  
(iii) Elaborate four rules which the farmer has to observe before applying pesticide in a field. **(4 marks)**
- (b) Calculate the plant population in a one hectare of maize farm in which maize plants are planted at a spacing of 90cm x 30cm with one plant per hill. **(3 marks)**
8. (a) What do you understand by 'change in demand' as used in Rural Economy? **(1 marks)**  
(b) Explain briefly five factors that cause change in demand of an agricultural good. **(5 marks)**
9. (a) (i) What is meant by agricultural mechanization? **(1 mark)**  
(ii) Explain briefly four ways in which agricultural mechanization is important in bringing about more intensive production. **(4 marks)**
- (b) Examine three advantages of using animal power over tractors. **(3 marks)**
10. Calcium carbonate is one of the materials which are used in liming.
- (a) With the aid of illustrations, show how calcium carbonate chemically neutralizes soil acidity. **(2 marks)**
- (b) Outline five beneficial effects of liming in agriculture. **(5 marks)**

### SECTION C (20 Marks)

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

11. Explain the process of paddy production until when the time the crop is ready for harvest.
12. One of the limitations to the dairy industry in Tanzania is inadequate animals nutrition. Explain seven qualities of pastures and ten ways of managing pastures.
13. Account for the seven factors influencing soil erosion, its effects in crop production and suggest eight ways in which soil erosion can be controlled.