

**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

Thursday, 20th October 2011 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).

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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.
- (i) A burdizzo is an instrument which is used for
A castration B feather plucking C dehorning
D deworming E tattooing
- (ii) Elasticity of demand of a product is said to be inelastic when it is
A less than two B equal to one C less than one
D equal to two E equal to three
- (iii) Normally a two stroke engine uses
A diesel and oil lubrication B petrol oil lubrication
C force-feed lubrication D splash lubrication
E petrol lubrication
- (iv) A middlemen who travels from one place to another, buying goods from wholesalers and distributes or sells it to retailers is known as
A broker B jobber C retailer D consumer E arbitrageur
- (v) A system of breeding where a Jersey bull is crossed to a Zebu cow and then the female offspring are back crossed to the Jersey bull for several generations is called
A cross breeding B Line breeding C Sex linkage
D Inbreeding E Up grading
- (vi) Which of the following diseases is caused by overwatering, overcrowding and over shading in a nursery bed?
A Wilting B Bacterial blight C Downy mildew
D Damping off E Seedling disease
- (vii) Which of the following statements is correct about engine valves during power stroke?
A Both inlet and exhaust valves are open
B Both inlet valve and exhaust valve are closed
C The exhaust valve is open and inlet valve is closed
D Inlet valve is open and the outlet valve is closed
E Both inlet and exhaust valves fail to function
- (viii) In an experiment done to determine the percentage of water in a soil sample, the following results were obtained:
Weight of crucible = 50 g
Weight of crucible + soil before heating = 75 g
Weight of crucible + soil after heating = 72 g
What is the percentage of water in the soil sample?
A 12% B 16% C 20% D 24% E 28%

- (ix) Which of the following fishing gears catches fish rather selectively?
 A Conical reed baskets B Drag reed baskets C Seine nets
 D Line and hook E Gill nets
- (x) Which of the following are the most important products of the beekeeping industry?
 A Nectar and honey B Bees wax and nectar C Honey and beeswax
 D Pollen and honey E Bees wax and pollen

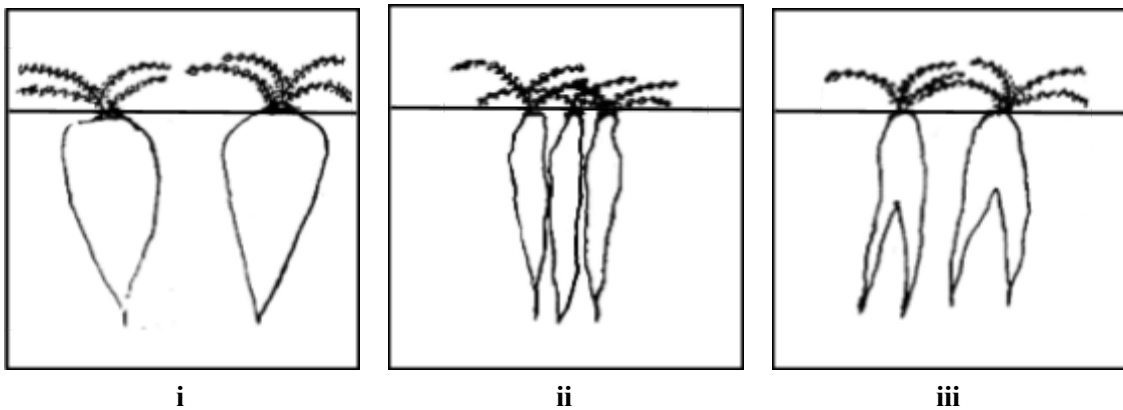
2. Match the items in **List A** with the responses in **List B** by writing the letter of the correct response beside the item number.

LIST A	LIST B
(i) Used for boring holes in a piece of wood.	A Hammer
(ii) Used for driving in chisels.	B Chisel
(iii) Used for striking and driving out nails.	C Brace
(iv) Used for shaving wood to give a plain surface.	D Metal file
(v) Used for chopping out in woodwork.	E Mallet
(vi) Used for reducing metal work of a particular size or shape.	F Auger bit
(vii) Used for boring small holes for screws.	G Bradawl
(viii) Used for marking lines at straight angles.	H G cramp
(ix) Used to test whether the right between two surfaces are the same all along the work piece.	I Plane
	J Saw
(x) Used for cutting wood.	K Bevel
	L Screw driver
	M Try square
	N Carpenter's square
	O Calliper

SECTION B (60 Marks)

Answer **all** questions in this section.

3. (a) (i) Name any three (3) reciprocating parts found in internal combustion engines of a tractor and state the function of each. **(03 marks)**
(ii) List down four (4) rotating parts found in tractor engines. **(02 marks)**
- (b) (i) What is tillage? **(01 mark)**
(ii) Name one (1) implement which is used for primary tillage and briefly explain the situation in which it is used. **(02 marks)**
4. One of the most important chemical properties of the soil is soil pH
(a) What do you understand by the term 'Soil pH'? **(01 mark)**
(b) Explain six (6) ways in which soil pH is important for plant growth. **(06 marks)**
5. (a) Use illustrations to show how the chicks will behave inside the brooder house under the following conditions:
(i) Too high temperature
(ii) Too low temperature
(iii) Ideal or optimum temperature **(06 marks)**
- (b) Suppose your brooder was faced with the same condition in (a) (i) above, what four (4) measures would you take to rectify the situation? **(02 marks)**
6. Study carefully the diagrams of carrot plants shown below and then answer the questions that follows;



- (a) For each of the diagrams above give one reason as to why the carrots are in such situation. **(03 marks)**
- (b) Suppose you are given the following crops and asked to plan a rotation for them; Peas, tomato, carrots and cabbage. Draw a well labelled diagram to show the position of the crops on plots in the first, second, third and fourth year respectively. **(06 marks)**

7. Mr. Katango is a livestock keeper and at the same time he grows different crop plants randomly spaced in the field
- (a) Name the farming system and the system of cropping practiced by Mr. Katango. **(01 marks)**
- (b) State four (4) advantages of the system of cropping used by Mr. Katango. **(04 marks)**
8. (a) (i) What do you understand by the term 'elasticity of demand'?
- (ii) If demand of tomatoes in the market falls from 500kg to 200kg as the result of the price per kg increasing from 1,000/= to 2,000/=. What is the value of elasticity demand? **(04 marks)**
- (b) Name the type of elasticity of demand in each of the following situations;
- (i) Elasticity of demand is less than 1.
- (ii) Elasticity of demand is equal to 1.
- (iii) Elasticity of demand is greater than 1. **(03 marks)**
9. The majority of farmers in Tanzania are peasants who exercise subsistence farming.
- (a) What is meant by subsistence farming? **(01 mark)**
- (b) Explain in brief six (6) characteristics of subsistence farming. **(06 marks)**
10. (a) (i) What do you understand by the term 'innovation' as used in agricultural extension? **(01 mark)**
- (ii) Outline five (5) stages involved in the process of adoption of innovation and point out what is all about in the first stage. **(03 marks)**
- (b) Briefly explain five characteristics of innovation that makes it being adopted at different rates. **(05 marks)**

SECTION C (20 Marks)

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

11. The women group in Ngukumo village wants to establish a vegetable garden on commercial basis. As an agricultural extension worker, use your agricultural knowledge to advise them on factors to consider when selecting suitable site and planning for their garden.
12. Describe the suitable characteristics and management of dairy cattle.
13. Discuss the concept of 'balance of payments' as it is used in international trade.