**Name: …………………………………………………………….…Index No: ……………………..……………….……**

**School ………………………………………………............. …………………Candidate’s Signature:…………………**

 **Date…………….………………………………..**

**443/1**

**AGRICULTURE**

**PAPER 1**

**TIME: 2 HOURS**

***Kenya Certificate of Secondary Education (K.C.S.E)***

**443/1**

**AGRICULTURE**

**PAPER 1**

**TIME: 2 HOURS**

**INSTRUCTIONS TO CANDIDATES:**

* *Write your* ***name*** *and* ***index number*** *in the spaces provided.*
* ***Sign*** *and* ***write the date*** *of examination in the spaces provided*
* *This paper consists of* ***three*** *section* ***A,B*** *and* ***C***
* *Answer all the questions in sections* ***A*** *and* ***B***
* *Answer any* ***two*** *questions in section* ***C***
* *All the questions should answered in the spaces provided*
* ***This paper consists of 10 printed pages.***
* ***Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.***

**FOR EXAMINER’S USE ONLY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Section** | **Questions** | **Max score** | **Candidates score** |
| **A** | **1-17** | **30** |  |
| **B** | **18-21** | **20** |  |
| **C** | **22** | **20** |  |
| **23** | **20** |  |
| **24** | **20** |  |
| **Total** | **90** |  |

**SECTION A 30MARKS**

1. Give **three** reasons why shifting cultivation is being discouraged. (1 ½ marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...…………………

1. State **three** ways in which agriculture supports agro-based industries (1 ½ marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...………………….

1. Give **two** symptoms common on crops deficient in nitrogen and potassium (1mark)

…………………………………………………………………………………………………………………………………………………………….………………………………………………………………..

1. Give **two** sources of phosphorous in the soil. (1mark)

…………………………………………………………………………………………………………………………………………………………….………………………………………………………………...

1. State **two** functions of iron in plants. (1mark)

…………………………………………………………………………………………………………………………………………………………….……………………………………………………………….

1. Distinguish between Fertilizer grade and Fertilizer ratio. (2marks)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………............................................................................................................................................................................................................

1. List **six** factors that determine the effectiveness of a herbicide (3marks)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………....................................................................................................................................................................................................................................................................................................................................................................................

………………………………………………………………………………………………………………

1. State **three** disadvantages of tillage as a method of weed control in a maize field (1 ½ marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...…………………

1. Name the underground structures that make each of the following weeds difficult to control: (1mark)

(a)Nut grass (*Cyperus rotundus*)

……………………………………………………………………………………………………………

b) Couch grass (*Digitaria scalarum*)

………………………………………………………………………………………………………

1. Give **one** mechanical method of controlling water hyacinth (1mark)

………………………………………………………………………………………………………………

1. Give **two** advantages of drip irrigation over surface irrigation. (1mark)

…………………………………………………………………………………………………………………………………………………………….……………………………………………………………….

1. Other than conservation of soil and water, state **two** other benefits of agro- forestry (1mark)

…………………………………………………………………………………………………………………………………………………………….……………………………………………………………….

1. Distinguish between land subdivision and land fragmentation (2marks)

…………………………………………………………………………………………………………………………………………………………….………………………………………………………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………..

1. Name the settlement schemes in Kenya at independence that: (2marks)
2. consisted of 100-acre plots surrounding houses formerly owned by White settlers

………………………………………………………………………………………………………….

1. were curved out from National forest

……………….……………………………………………………………………………………….

1. (a) Outline the steps of making baled hay from mature Rhode grass in the field. (2 ½ marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...…………………………………………………………………………………………………………………………………

(b) Give **four** factors that may affect the quality of the hay in (a) above (2marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...…………………………………………………………………………………………………………………………………

1. (a)What is meant by each of the following in agricultural economics? (2marks)
2. Gross Domestic Product

………………………………………………………………………………………………………………………………………………………………………………………….…………………..

1. Per capita income

………………………………………………………………………………………………………………………………………………………………………………..……………………………

(b) State **four** sources of agriculture credit to farmers (2marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...…………………………………………………………………………………………………………………………………

 17. Give **two** types of labour records (1mark)

……………………………………………………………………………………………………………………………………………………………………………………………………………………………..

**SECTION B (20MARKS)**

18. Below are illustrations of **three** stages of a life cycle of pest that attacks maize in the field. Study them and

 answer the question that follows.



(a) Identify the pest

………………………………………………………………….....................................................(1mark)

1. Name the stage of the pest labelled **B**

…………………………………………………………………………………..…………… (1mark)

(c ) Describe the damage done by the pest in stage **C** (1mark)

……………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...

(d) Give **three** control measures for the pest while the crop is in the field (3marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...………………………………………………………………………………………………………………………………

19. Illustrated below is method of grafting in citrus trees. Study it and answer the questions that follows:



(a) Identify the method ……………………………………………………………………………………………………(1mark)

(b) What name is given to the part labelled

 **D**…………………………………………………………………………… (1mark)

(c ) Give **two** characteristic of the part labelled E that makes it suitable for use in grafting. (2marks)

…………………………………………………………………………………………………………………………………………………………….………………………………………………………………..

(d) Name the appropriate materials for wrapping round the union at point **F**. (1mark)

 ………………………………………………………………………………………………………

20. (a)An experiment was d**one** on a moist soil sample as outlined below:

 Weight of empty silica dish =20grams

 Weight of moist soil and the dish =50grams

 Weight of the soil and the dish after being placed in oven (1050C) for several hours =40grams

 Calculate the percentage of moisture in the soil sample (show your workings) (2marks)

(b)(i) The soil obtained in (a) above was ignited over a Bunsen burner for several hours to remove humus.

 After heating and cooling in desicator severally, the constant weight of the dish and the residue was

 found to be 35 grams.

 Calculate the percentage of humus in the dry soil sample (show your workings) (2marks)

 (ii)What is the role of humus in the soil? (1marks)

…………………………………………………………………………………………………………………………………………………………….……………………………………………………………….

21. The illustration below shows format a type of farm record kept in pig rearing .Study it and answer the questions that follow.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sow No. | Sire noBreed: | Date of service: | Date of farrowing Expected Actual | Remarks |
|  |  |  |  |  |

1. Identify the record …………………………………………………………………………… (1mark)
2. Sow number 10 was served on 1st February, 2015. State the expected date of farrowing (1mark)

…………………………………………………………………………………………………………………………………………………………………………………………………………….……………….

1. Give **three** reasons for keeping the above records. (3marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

**SECTION C (40MARKS)**

***Answer only two question in this section in the spaces provided after question 24.***

22. (a) Describe the field production of carrots for fresh vegetable market on a land that has been fallow under

 the following subheadings:

 (i) Varieties (2marks)

 (ii) Land preparation (3marks)

 (iii) Planting (4marks)

 (iv) Field management practices and harvesting (6marks)

 (b)Explain **five** post harvest practices in grains before processing (5marks)

23. (a)Describe the stages of chemical water treatment for human consumption (6marks)

 (b) Describe **four** methods of draining marshy land for pasture production (4marks)

 (c) State **five** physical methods of soil and water conservation carried out on arable land with 20% slope. Explain how each method works. (10marks)

24. (a) Explain **five** advantages of rotational grazing of livestock (5marks)

 (b)Explain **ten** cultural practices that are carried out in the field to control crop diseases. (10 marks)

 (c ) What are the advantages of propagating crops by use of seeds? (5marks)

…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...…………………………………………………………………………………………………………………………………………………………….…………………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….

…………………………………………………………………………………………………………………………………………………...………………………………………………………………………….