



443/1 MS
AGRICULTURE
Paper 1
MARKING SCHEME
November 2025

THE KENYA NATIONAL EXAMINATIONS COUNCIL
KENYA CERTIFICATE OF SECONDARY EDUCATION

AGRICULTURE

Paper 1

MARKING SCHEME
(CONFIDENTIAL)

THIS MARKING SCHEME IS THE PROPERTY OF THE KENYA NATIONAL EXAMINATIONS COUNCIL AND IT MUST BE RETURNED AT THE END OF THE MARKING EXERCISE.

This marking scheme consists of 10 printed pages.

SECTION A (30 marks)

No.	Marking Scheme	Marks
1.	<p>Advantages of mixed farming:</p> <ul style="list-style-type: none"> i) - Farmers benefits from crops and livestock; ii) - There is mutual benefits between livestock and crops; iii) - There is diversification; - Maximize utilization of available land/labour/resources; - Increase yield per unit area. <p><i>Income is spread throughout the year</i> $4 \times \frac{1}{2} =$</p>	(2 marks)
2.	<p>Activities of earthworms improve soil fertility</p> <ul style="list-style-type: none"> i) - Make burrow into the soil making it well aerated and loose; ii) - Make burrows that increases water infiltration; iii) iii) - Die and decompose into organic matter; iv) iv) - Contributes to weathering process; v) - Decompose organic matter into the soil; <i>Add nutrients</i> vi) - Their excreta improves soil structure which improve water holding capacity/retention. <p>$4 \times \frac{1}{2} =$</p>	(2 marks)
3.	<p>Organic mulch conserves water in the soil</p> <ul style="list-style-type: none"> i) - Reduce evaporation; ii) - Reduce run-off hence improves water infiltration; iii) - It decomposes into humus to improve soil structure for water retention; iv) - Controls soil erosion. <p>$3 \times \frac{1}{2} =$</p>	(1½ marks)
4.	<p>Importance of resettlement</p> <ul style="list-style-type: none"> i) - Settles the landless; ii) - Eases population pressure in densely populated areas; iii) - Create employment through farming activities; iv) - Put idle land to agricultural use; v) - Protect forested area or area ^{occupied} copied with wild life. vi) <i>To form some kind of far-terfly consolidated barrier</i> <p>$4 \times \frac{1}{2} =$</p>	(2 marks)
5.	<p>Reasons for up-to-date labour records</p> <ul style="list-style-type: none"> i) - Help to calculate profit; <i>loss</i> ii) - Guide labour allocation or utilization; iii) - Facilitate preparation of payroll; iv) - Determine labour efficiency; v) - Determine taxation or statutory deductions; vi) - Determine which and when labour is in peak demand; vii) <i>Guides in budgeting</i> <p>$4 \times \frac{1}{2} =$</p>	(2 marks)

No.	Marking Scheme	Marks
6.	Characteristics of a good site for a nursery bed: <ul style="list-style-type: none"> i) - Near water source; ii) - Well drained, deep fertile soil; iii) - On a gentle slope to prevent flooding; iv) - Protected against animal destruction; v) - Well sheltered to prevent strong winds; vi) - Sited where similar crop was not previously grown to prevent pest and disease build up. vii) - Accessible; 	<p style="text-align: right;">$4 \times \frac{1}{2} =$ (2 marks)</p>
7.	Striga weed control measures <ul style="list-style-type: none"> i) - Spraying with herbicides; ii) - Uprooting; iii) - Cultivation; iv) - Slashing/mowing; v) - Push and pull technique; vi) - Application of manure; vii) - Crop rotation. <i>rotation</i> 	<p style="text-align: right;">$4 \times \frac{1}{2} =$ (2 marks)</p>
8.	Reasons for top dressing napier grass <ul style="list-style-type: none"> i) - Add soil nutrients / replenish soil nutrient; ii) - Increase the herbage yield; iii) - Improve the nutritive value of the crop; iv) - Encourage micro-organisms to break down organic residue; v) - Correct physical and chemical (PH) properties of the soil / <i>pH</i> vi) - Increase growth rate. 	<p style="text-align: right;">$4 \times \frac{1}{2} =$ (2 marks)</p>
9.	Reasons for training tomato plants <ul style="list-style-type: none"> i) - To make plants to grow in a desired direction and shape; ii) - Facilitate harvesting and spraying; <i>Field management practices</i> iii) - Produces clean fruits; iv) - To support the plants. v) - <i>To prevent infestation by soil borne ^{Pests}</i> 	<p style="text-align: right;">$4 \times \frac{1}{2} =$ (2 marks)</p>

vii) - To reduce incidences disease outbreak eg blight or ^{worm} ~~worm~~ eg.

Marking Scheme		Marks
10.	Factors that determine stage of harvesting beans: i) - Purpose of the crop/ use for the crop; ii) - Market demand; iii) - Weather condition; iv) - Concentration of required chemicals; v) - Prevailing market prices and profit margins. $4 \times \frac{1}{2} =$	(2 marks)
11. a)	Hybrid – A variety developed by crossing inbreed lines or varieties under controlled pollination. <i>OK/TTE</i> $(1 \times 1 = 1 \text{ mark})$	(2 marks)
b)	Composite – A variety developed by growing a number of varieties together under uncontrolled pollination. <i>OK/TTE</i> $(1 \times 1 = 1 \text{ mark})$	
12.	Why TSP is applied during planting i) - Sparingly soluble in water; ii) - Have high residual effects; iii) - Not easily leached; iv) - Have a slight scorching effects. v) - <i>promote root development</i> $4 \times \frac{1}{2} =$	(2 marks)
13.	Maintenance practices for drip irrigation system i) - Replacing worn out parts / broken pipes; ii) - Flushing the system; iii) - Regulating /maintaining water pressure; iv) - Cleaning water tanks/filters; v) - Repairing damaged/broken parts. $4 \times \frac{1}{2} =$	(2 marks)
14.	Characteristics of good agroforestry trees i) - Fast growth; ii) - Deep rooted to reduce competition with crops; <i>Hardy / Drought resistant</i> iii) - Nitrogen fixation; <i>fixing/leguminous</i> iv) - Good in bi-products/multi-purpose; v) - <i>open canopy to allow light penetration</i> vi) - <i>Adapted to the ecological conditions</i> $4 \times \frac{1}{2} =$	(2 marks)
15.	Land clearing operations: i) - Felling trees; ii) - Cutting of grass/slashing / mowing; iii) - Disposal of cleared vegetation; <i>chop residue</i> iv) - Use of herbicides; v) - Removal of stumps; <i>stones</i>	(2½ marks)

No.	Marking Scheme	Marks
18.	<p>(a) Type of soil erosion:</p> <ul style="list-style-type: none"> - Rill. 1 x 1 <p>(b) Two reasons:</p> <ul style="list-style-type: none"> i) - Roots of grass bind soil particles together to stabilize the ground; ii) - The grass canopy reduces the impact of rain drop to prevent dislodging of soil; iii) - Slows down the speed of runoffs; iv) - Roots penetrate dense soil and facilitate water infiltration; v) - Trap soil during surface runoffs <p>(c) Two ways how ^{tree planting} trash-line controls erosion:</p> <ul style="list-style-type: none"> i) - Roots of trees bind soil particles together to stabilize the ground; ii) - The tree canopy reduces the impact of rain drops to prevent dislodging of soil; iii) - Slows down the speed of runoffs; iv) - Roots penetrate dense soil and facilitate water infiltration; v) - Trap soil during surface runoffs vi) - Leaf fall forms organic matter which improves soil structure vii) - Trees absorb water from the soil to reduce the likelihood of saturation and erosion. 	<p>(1 mark)</p> <p>(2 marks)</p> <p>(2 marks)</p>
19.	<p>(a) (i) Type of manure: i) Pit/Indore method - Compost manure.</p> <p>(ii) Method Type of manure - Pit method. Compost manure re) compost site/composite</p> <p>(b) Pit method</p> <ul style="list-style-type: none"> i) - Dig 5 pits; ii) - Fill 4 pits with organic matter/materials; iii) - After 3 – 4 weeks move the materials in pit 4 to 5, 3 to 4, 2 to 3 and 1 to 2; iv) - Repeat this process until the manure is fully decomposed. 	<p>(2 marks)</p> <p>(1 mark)</p> <p>(1 mark)</p> <p>(3 marks)</p>

SECTION C (40 marks)

No.	Marking Scheme	Marks
20.	<p>(a) Precautions when harvesting tea</p> <ul style="list-style-type: none"> - Leaves should not be compressed, <i>to avoid heating up</i> - Keep harvested leaves under shade, <i>to prevent overheating</i> - Take harvested leaves to the factory the same day/within 24 hours. - Put harvested leaves in woven basket, <i>to prevent fermentation</i> - Harvest two leaves and a bud; <i>to maintain quality</i> - Avoid harvesting when it's raining. <p><i>Use a plucking stick to maintain plucking table</i></p>	5 x 1 5 marks
	<p>(b) Procedure of collecting soil sample:</p> <ul style="list-style-type: none"> - Mark the field; using traverse or zigzag method - Clear vegetation from sampling site; - Make vertical cut (5 – 25 cm) for crop land and 5 cm from pasture land; - Take a slice from vertical cut; - Put the soil in a clean polythene bag; - Repeat the steps to take samples from several parts of the field; - Thoroughly mix soil from different spots; - Take a soil sample from the mixture and send to the laboratory; <p><i>Send to the laboratory for testing</i></p>	<p><i>Acc of a candidate</i> <i>point (i) & (ii)</i></p> <p>6 x 1 6 marks</p> <p><i>inter-heap</i></p>
	<p>(c) How the following influence ability of soil to support crop production:</p> <p>(i) Soil PH</p> <ul style="list-style-type: none"> i) - Influences availability of plant nutrients; ii) - Influences activities of soil micro-organisms; iii) - Influences type of crop to be grown. <p>(ii) Soil texture</p> <ul style="list-style-type: none"> i) - Workability of the soil; ii) - Water holding capacity/ <i>porosity/ drainage/ Aeration</i> <p>(iii) Soil structure</p> <ul style="list-style-type: none"> i) - Depth of soil; ii) - Root depth; iii) - Availability of soil moisture. iv) - <i>Erodibility of the soil</i> <p>(iv) Nutrient content</p> <ul style="list-style-type: none"> i) - <i>Affect crop growth/ Resistance to pests & disease attack</i> ii) - Determine crop yield. iii) - <i>Influence quality of the product eg</i> <i>in pasture crops</i> 	<p>1 x 1</p> <p>1 x 1</p> <p>1 x 1</p> <p>4 marks</p>

<ul style="list-style-type: none"> i) ✓ ii) ✓ iii) ✓ iv) ✓ v) ✓ vi) ✓ vii) ✓ 	<p>(d) Reasons why irrigation is carried out:</p> <ul style="list-style-type: none"> - Supplement rainfall; - Ensure crop production is realized during period of short moisture supply (thru <i>thru</i> out <i>the year</i>); - Cool the soil and modifies temperature; - Remove excess or dilute salts from the soil; - Reclaim dry land; - Modify soil physical conditions/ make soil softer facilitating tillage operations. <p><i>Facilitate fertilization</i> <i>iii) Allows growing of paddy rice</i> <i>xi) Facilitate growth</i> <i>5 x 1</i> <i>5 marks</i> <i>chops in greenhouse</i></p>	
<p>21.</p> <ul style="list-style-type: none"> i) ✓ ii) ✓ iii) ✓ iv) ✓ v) ✓ vi) ✓ vii) ✓ viii) ✓ ix) ✓ x) ✓ xi) ✓ xii) ✓ 	<p>(a) Nursery management practices</p> <ul style="list-style-type: none"> - Mulching to conserve moisture - Fencing/ shading to protect the seedlings - Thinning to prevent overcrowding - Watering regularly - Weed control by uprooting - Spraying with pesticides to control pests - Spraying with fungicides to control diseases - Fertilizer application to supply plant nutrients (<i>Foliar feeds</i>) - Hardening off by gradually reducing watering and shade. <p><i>Remove the mulch when seedlings emerge</i> <i>8 x 1</i> <i>Shading to conserve moisture</i></p>	<p>(8 marks)</p>
<ul style="list-style-type: none"> i) ✓ ii) ✓ iii) ✓ iv) ✓ v) ✓ vi) ✓ vii) ✓ viii) ✓ ix) ✓ x) ✓ xi) ✓ xii) ✓ 	<p>(b) <u>Transplanting</u></p> <ul style="list-style-type: none"> - After one month <i>After 6 weeks</i> / 3-4 leaves/pencil size diameter thickness / <i>10-15 cm tall</i> - Water the seedlings 24 hours before transplanting - Transplant in morning/evening/when the weather is cool - Using a garden trowel, lift the seedlings with a ball of soil around the roots - Prepare planting holes at a spacing of 60 x 45-60 cm <i>90-100 cm by 50-60 cm</i> - Add manure/phosphatic fertilizer to the planting holes - Mix the manure/fertilizer with the soil - Place seedling in the planting holes at the same depth it was in the nursery - Cover with soil and firm around the seedlings - Mulch around the seedling to conserve moisture - Water the seedlings - <i>Select healthy and vigorously growing seedlings</i> <p><i>10 x 1</i> <i>5 marks</i></p>	<p><i>5 x 1</i></p>

iii) - Carefully transport the seedlings to the main seed beds.

(c) Weed control	<ul style="list-style-type: none"> i) - Keep the crop weed free to reduce competition and avoid disease vectors ii) - Weed by applying selective herbicides/ <i>Use correct example</i> iii) - Weeds can also be dug out manually. iv) - Mulching can also be used to control weeds. v) - <i>Uprooting the weeds</i> 	<i>eg. 2-40</i>	3 x 1	3 marks
(d) Pest control	<ul style="list-style-type: none"> - Scout for pests on the plants - Preventive spraying with pesticides - Clean weeding - Use of physical barriers: greenhouse and shade nets - Biological control using insects or fungi - Hand picking <i>and killing</i> - Organic sprays using plant extracts - Intercropping with repellent plants - <i>Crop rotation to control nematodes</i> 		2 x 1	2 marks
(e) Disease control	<ul style="list-style-type: none"> i) - Appropriate and regular watering ii) - Proper spacing iii) - Crop rotation iv) - Use of resistant varieties v) - Use of clean and healthy planting materials vi) - Spraying with fungicides vii) - Remove and destroy infected plants/ <i>Roguing</i> viii) - Maintain field hygiene to prevent spread. 	<ul style="list-style-type: none"> x) Apply appropriate amount of Calcium & nitrogen x) Pruning to avoid blight attack 	2 x 1	2 marks
22. (a) Factors considered when choosing farm enterprise	<ul style="list-style-type: none"> i) - Site of the farm: conducive climate, fertile soil, water is available, gentle sloping. ii) - Environmental factors / ecological conditions: temperature is favourable and rainfall is reliable. iii) - The current trends in labour market; <i>available</i> iv) - Farmer's objectives and preferences; <i>considered</i> v) - Possible production enterprise; vi) - Existing market conditions and price trends; <i>available</i> vii) - Availability and cost of farm inputs; <i>affordable</i> viii) - Government regulations / policy; <i>adhered to</i> ix) - Security of the enterprise; <i>secure/ safe</i> x) - Communication and transport facilities; <i>available</i> xi) - Capital; <i>adequate</i> xii) - Labour cost; <i>affordable</i> xiii) - <i>Size of the farm; determine the size and type of enterprise</i> 		5 x 2 10 x 1	10 marks

iv) Cultural practices, beliefs & customs; should be considered

Roles A

(b) Reasons for packaging:

- Easy to handle.
- Protect against spoilage / contamination.
- Reduce bulkiness.
- Branding.
- Give consumer a wide choice of amount to purchase since product is placed in different quantities.
- Increases shelf life.
- Help in quality and quantity control.
- Protect against adulteration.

Advertisement

5 x 1

5 marks

(c) Journal / information posted in a journal:

- Date.
- Name of the account to be deposited. debited
- Amount of money involved.
- Description of the transaction.
- Reference page or folio.
- Name of the account to be credited.

5 x 1

5 marks