MARKING SCHEME
AGRICULTURE PP 1
JULY 2019

SECTION A (30MARKS)

Answer all the questions in this section in the space provided.

1. Advantages of intensive farming. (2mks)
   - Increases production per unit area
   - Farm supervision is easy
   - Ideal for densely populated area/small land holdings
   - Utilizes technology to increase production

   ½ x 4 = 2mks

2. Benefits of agroforestry to a maize crop. (2mks)
   - Leguminous trees fix nitrogen into the soil
   - Trees acts as wind breaks
   - Trees stabilizes soil against soil erosion
   - Leaf litter decompose forming humus/recycle nutrients
   - Trees act as water catchment area/conserve water

   ½ x 4 = 2mks

3. Plant part used for vegetative propagation of each of the following plants.
   (i) Sisal - Bulbils/suckers (½ mk)
   (ii) Pyrethrum - splits (½ mk)
   (iii) Sweet potatoes – vine /stem cutting (reject cutting alone) (½ mk)
   (iv) Sugar cane – setts (½ mk)

4. Cultural ways of controlling couch grass (2mks)
   (i) Mulching
   (ii) Cover cropping
   (iii) Crop rotation
   (iv) Proper spacing
   (v) Clean seed bed
   (vi) Flooding
   (vii) Timely planting

   ½ x 4 = 2mks

5. Sources of underground water (1½mks)
   - Springs

- Boreholes
- Wells
  ½ x 3 = 1 ½ mks

6. Causes of blossom end of rot in tomatoes (1½mks)
   - Irregular watering
   - Lack of calcium
   - Excessive use of nitrogen
     ½ x 3 = 1 ½ mks

7. Qualities of a good green manuring plant (1½mks)
   - Hardy
   - Fast growth
   - Ability to rot quickly
   - Highly leafy
   - Leguminous
     ½ x 3 = 1 ½ mks

8. Reasons for practicing minimum tillage. (2mks)
   - Reduce cost of cultivation
   - Control soil erosion
   - Improve soil structure
   - Conserve water
     ½ x 4 = 2mks

9. Records that should be kept by a poultry farms. (2mks)
   - Health records
   - Feeding records
   - Labour records
   - Egg production records
   - Marketing records
   - Inventory records
     ½ x 4 = 2mks

10. Ways in which pastures are classified (1½mks)
    - Pasture stand; pure/mixed stand
    - Pasture establishment; Natural/artificial
    - Ecological zone
      ½ x 3 = 1 ½ mks

11. Ways in which land reforms can be implemented in Kenya. (2mks)
    - Land consolidation.
    - Land adjudication and registration/issue of title deeds
    - Improve land legislation

- Tenancy reforms
- Land settlement and resettlement
  ½ x 4 = 2mks

12. Factors that determine the stage at which a crop is harvested. (2mks)
    - Market price/market demand
    - Weather conditions
    - Purpose/intended use
    - Taste and preference/form required
    - Concentration of required chemical/colour/maturity
      ½ x 4 = 2mks

13. Beneficial effects of weeds to a farmer. (2mks)
    - Some are edible to man
    - Some have medicinal value e.g Datura strommonium/thorn apple
    - Control soil erosion
    - Some provide food to livestock
    - Releases humus after decomposition
      ½ x 4 = 2mks

14. Advantages of practicing crop rotation. (2mks)
    - Maximum use of nutrients
    - Control buildup of pests and diseases
    - Control weeds
    - Improve soil fertility when legumes are included
    - Control soil erosion when cover crops are included
    - Improves soil structure if grass lay is included
      ½ x 4 = 2mks (reject if underlined word is missing)

15. Name four methods of controlling pests. (2mks)
    - Biological methods – accept specific example
    - Chemical method
    - Cultural method – accept specific example
    - Physical/mechanical method – accept specific examples
    - Legislation.
      ½ x 4 = 2mks

16. Distinguish between intensive hedgerow and border planting forms of agroforestry (2mk)
    - Intensive hedgerow – Trees or shrubs are planted in between rows of crops
    - Border planting – Trees or shrubs are planted on the border of the farm.

SECTION B (20 MARKS)

Answer all the questions in this section in the spaces provided.

17. The following illustrations show different production function curves in agricultural economics. Study them and answer the questions which follows;

(a) Identify the production function curves labeled A, B and C

A – Increasing returns production (1mk)

B – Constant returns production. (1mk)

C – Decreasing returns production (1mk)

Reject if the word returns is missing.

(b) What does the law derived from the production function labeled C state? (1mk)

- If successive units of one variable input are added to fixed quantities of other inputs, a point is reached when additional/extra/marginal product per additional unit of input declines.

1 x 1 = 1mk

(c) Which one of the three production functions curves is rare in Agriculture (1mk)

(i) B 1 x 1 = 1mk

(ii) Other factors influencing/limiting agricultural production e.g.

- Weather
- Biotic factor
- Disease attack

1 x 1 = 1mk (Reject if the answer in C (i) above is wrong.

18. The table below shows the population and gross domestic products of countries A and B

Country	**Gross Domestic product (million Ksh)**	**Population (million)**
A	1800	36
B	1200	15

(a) Calculate the per capita income for each country show your working (2mks)

Calculation of per capital income

Per capita income = $\frac{Gross\ Domestic\ product}{population}$

A = $\frac{1800}{36} = 50$

B = $\frac{1200}{15} = 80$

1 x 2 = 2mks

(b) Which of the two countries is more developed economically (1mk)
B 1 x 1 = 1mk

(c) Give a reason for your answer in (b) above (1mk)
B has a higher per capita income
1 x 1 = 1mk

(d) How can agriculture increase the gross domestic product of a country (1mk)
By creating employment/developing industries/increasing production.
1 x 1 = 1mk

19. The diagram below illustrate investigation on a property of soil using soil samples labeled J, K and L.

(a) Name the property of soil being investigated (1mk)
✓ Soil capillarity 1 x 1 = 1mk

(b) What is the relationship between the soil property above and the size of soil particles? (1mk)
✓ The smaller the size of the particles the greater the force of capillarity.
1 x 1 = 1mk

(c) Which soil sample would be suitable for growing paddy rice? (1mk)
✓ L 1 x 1 = 1mk

(d) Give a reason for your answer in (c) above (1mk)
- Has the highest capillarity/has the highest water holding capacity.
1 x 1 = 1mk

20. The following is a list of nutrients: copper, calcium, nitrogen, molybodenum, zinc, phosphorus, carbon, sulphur, iron and magnesium. Which of the above nutrients are;

(a) Macro – nutrients (1mk)
✓ Calcium, Nitrogen, Phosphorus, Carbon, Sulphur and Magnesium
(Award 1 mark of all the five macro – nutrients are present. Penalize fully if any of the macro – nutrients is missing.

(b) Micro – nutrient (1mk)
✓ Copper, molybodenum, Zinc and Iron
(Award 1 mark of all the four micro – nutrient are there)

(c) Fertilizer elements (1mk)
✓ Nitrogen and Phosphorus
(Award 1 mark if the two are present)

(d) Liming elements (1mk)
✓ Calcium, Magnesium and Sulphur.
(Award 1 mark if the three are present

(e) Primary macro nutrients (1mk)
✓ Nitrogen and Phosphorus
(Award 1 mark if the two nutrients are presents

SECTION C

Answer any two questions in this section in the spaces provided after question.

21.

(a) Functions of a live fence in a farm. (5mks)

- ✓ Act as windbreak
- ✓ Some are used as a fodder for the livestock e.g tickberry
- ✓ Some may provide edible fruits e.g Kei apple
- ✓ Have aesthetic value
- ✓ Provide security
- ✓ Mark the boundary when planted on a border lines

1 x 5 = 5mks

(b) Describe various risks and uncertainties in crop farming (10mks)

- ✓ Technology uncertainty – farmers may not be sure of the effective of new production technology
- ✓ Price uncertainty – This is due to fluctuation of commodity prices.
- ✓ Personal injury or sickness – This may affect the ability of the farmer to work
- ✓ Government policy – this may change with time making farmer to incur losses
- ✓ Demand for a commodity uncertainty – this results in a loss when market demand is low.
- ✓ Yield uncertainty – A farmer cannot accurately project how much to expect
- ✓ Pest and disease outbreak – this may lower the yield
- ✓ Obsolescence – the farmer may invest in a technology which will become obsolete.
- ✓ Natural catastrophes – this include floods, earthquakes, storms etc.
- ✓ Labour uncertainty
- ✓ Political instability
- ✓ Theft of crop
- ✓ Fire risk/ownership uncertainty

1 x 10 = 10mks

(c) Functions of young farmers clubs in Kenya (5mks)

- ✓ Involvement in workshops and seminars related to agriculture.
- ✓ Participating in exhibitions and competitions at Ask shows.
- ✓ Involvement in agricultural projects at club level.
- ✓ Participating in young farmers club annual rallies
- ✓ Participate in national ploughing contest.
- ✓ Participate in exchange programme
- ✓ Participate in national tree planting activities.

1 x 5 = 5mks

22.

(a) Factors that should be considered in farm planning (10mks)

- ✓ Size of the farm – this determines the number of enterprises possible.
- ✓ Environmental factors/climate/soil type – this will determine specific enterprises that are possible in an arta.
- ✓ Transport and communication – this ensures produce reach market and inputs are easily accessed.
- ✓ Government policy – this ensures that laws are followed.
- ✓ Farmer objective and preferences – a farmer will have a sense of ownership of the farm plan for motivation.
- ✓ Trend in labour market – This ensures labour availability through the season
- ✓ Existing market conditions and price trends – this ensures what is sold is at an appropriate price
- ✓ Possible production enterprises – the farmer to choose the most profitable and convenient enterprise.

2 x 5 = 10mks

(b) Explain the different ways in which each of the following environmental factors influence crop production.

(i) Wind (5mks)

- ✓ Strong wind increases the rate of evaporation/evapotranspiration/wilting
- ✓ Help in pollination of crops
- ✓ Strong winds have a cooling effect which influences rate of physiological processes
- ✓ Strong winds may cause lodging/destruction of certain crops.
- ✓ Wind can spread diseases/pests
- ✓ Used in winnowing/cleaning grains

1 x 5 = 5mks

(ii) Temperature (5mks)

- ✓ It affects quality of certain crops eg. pineapple
- ✓ Causes increase in incidences of pests/diseases.
- ✓ Low temperature causes frost injury
- ✓ Influences distribution of crops
- ✓ High temperature increases rate of evapotranspiration hence wilting
- ✓ Influences the rate of physiological processes in crop.

1 x 5 = 5mks

23.

(a) Information contained in a purchase order. (5mks)

- ✓ Quantities of the goods
- ✓ Types of good required
- ✓ Date of order
- ✓ Date within which the ordered goods should be delivered
- ✓ Person who orders the goods

- ✓ Person who authorized the order
- ✓ Cost of goods/each item
- ✓ Name of the supplier
- ✓ Serial number
- ✓ Total amount/cost involved

  1 x 5 = 5mks

(b) Harvesting of tea (7mks)

- ✓ Leaves are picked selectively for the highest quality
- ✓ Pluck top two leaves and a bud for fine plucking/three leaves and a bud for coarse plucking
- ✓ Use a plucking stick to maintain the plucking table
- ✓ Pluck at 5 – 7 days interval in rainy season and 10 – 14 days in a dry period.
- ✓ Put the plucked tea in a woven basket to facilitate air circulation/prevent fermentation.
- ✓ Do not compress the leaves in this basket to prevent heating up/browning.
- ✓ Put plucked tea in cool and shaded place.
- ✓ Deliver the plucked tea to the factory same day.

  1 x 7 = 7mks

(c) Cultural methods of controlling soil erosion (8mks)

- ✓ Contour farming – cultivation and planting done across the slope hence in holding water thereby increasing infiltration and reducing run off.
- ✓ Mulching covers the soil thereby reducing splash erosion/reduce the speed of run off.
- ✓ Strip cropping – alternating strips of crops that give good soil cover with those that give little soil cover controls movement of soil particles hence control soil erosion.
- ✓ Vegetated water ways – this slows down run off/trap eroded soil particles thereby preventing soil erosion.
- ✓ Afforestation/re-afforestation – trees protect soil from splash erosion by atomizing rain drop/encourage water infiltration/protect soil from wind which could detach and remove soil particles.
- ✓ Intercropping – crops which do not cover soil and crops that have good ground cover should be planted together to prevent splash erosion/surface run off.
- ✓ Minimum tillage –this maintains good soil structure.
- ✓ Cover cropping – this spread over the surface of soil hence protect soil from effects of raindrops.
- ✓ Crop rotation – maintains soil cover for protection against soil erosion/improved soil structure.
- ✓ Correct spacing – this ensures adequate soil cover.
- ✓ Grass strips/filter strips – they are left between cultivated/cropped strips of land to reduce speed of water and filter out trodden soil.
- ✓ Agroforestry – this intercepts raindrops/stabilizes soil acts as wind breaks.
- ✓ Rotational grazing – this allows grass to recover thus prevent soil erosion.

  1 x 8 = 8mks