**MARKING SCHEME**

**MOKASA 2018**

**443/1**

**SECTION A (30MARKS)**

1. Advantages of mixed farming

* There is diversification of farming business
* Put better utilization of available land
* Mutual benefit between crops and animals
* Continuous flow of income to the farmer throughout the year
* Maximum use of permanent labour through out the year
* Draught animals i.e. oxen and donkey are used to provide power in the farm
* Better conservation of soil and water. (4 x ½ = 2 marks)

2. Two ways of classifying pastures

* According to the pastures stand
* According to the pasture establishment
* According to ecological zones latitudes (2 x ½ = 1 mark)

3. Effects of high level of education and technology on agriculture

* Help to interprete technical information
* Help to eradicate beliefs which affect agriculture
* Helps in accurate measurement and application of input
* Helps in proper decision making
* Help in proper crop and husbandry practices
* Leads to adoption of modern technologies
* Leads to proper recording and efficiency (4 x ½ = 2 marks)

4. Features that characterize subsistence farming

* Land for production is small
* Produce food just enough for home consumption
* There is limited application of farm inputs
* Emphasize mainly on food crops rather than cash crops
* Mixed farming and mixed cropping are commonly practiced
* There is limited application of farm inputs
* Use of labour intensive methods and simple hand tools (3 x ½ = 1½ marks)

5. Aspects of light that affect agricultural production

* Light duration
* Light intensity
* Light wavelength/quality (3 x ½ = 1½ marks)

6. Farming practices in agriculture that destroy soil structure

* Over-cultivation of the soil/land
* Using heavy machinery on wet soil
* Cultivating when soil is too wet or too dry
* Deforestation
* Overstocking
* Monocropping
* Burning of land (4 x ½ = 2 marks)

7. Characteristics of clay soil

* Fine in texture
* Poorly drained
* Has high water holding capacity
* Sticky when wet
* Hard and cracks when dry
* It is highly plastic and can easily be moulded
* Has high capillarity
* High pH (alkaline)
* Has high ion-exchange capacity (4 x ½ = 2 marks)

8. Reasons for erecting a shade over a nursery bed

* Prevent scorching of seedlings by direct sunlight
* Prevent damage of seedlings by rains
* Reduce hardening of the ground around the seedlings as a result of the impact of raindrops
* To reduce evaporation rate/conserve moisture (3 x ½ = 1½ marks)

9. Characteristics of good root stock

* Should be disease and pest tolerant
* Should be health and vigorous in growth
* Should be able to adapt to different soils and conditions
* Should be compatible with series of different crops (3 x ½ =1½ marks)

10. Tetiary operations

* Ridging
* Rolling
* Levelling (4 x ½ = 2 marks)

11. Reasons for sub-soiling

* Loosens up the soil
* Improves drainage and aeration of the soil
* It brings to the surface minerals below the soil/leached to lower soil layers
* Improves root penetration and development
* Bulky residues of pervious crops are buried in the process

 (4 x ½ = 2 marks)

12. Importance of seed selection

* To obtain seeds that produce high quality yields
* To obtain seeds with high germination percentage
* To get seeds that are suited to a given ecological region
* To obtain seeds that are disease and pest free
* Free from foreign particles
* Free from physical damage (4 x ½ = 2 marks)

13. Factors determining the time of planting

* Rainfall pattern/moisture availability
* Type of crop to be planted/growth habit
* Purpose of the crop
* Prevalence of pests, diseases, frost and other adverse ecological conditions
* Market demand
* Expected harvesting time in line with weather conditions

(4 x ½ = 2 marks)

14. Examples of fixed costs in agricultural production

* Land cost
* Rent
* Depreciation of farm buildings and machinery
* Salaries

(4 x ½ = 2 marks)

15. Ways in which land reform can be implemented in Kenya

* Land consolidation
* Land adjudication and registration/issue of title deed
* Land settlement and resettlement
* Tenancy reform
* Redistribution of land
* Improved land legislation
* Land subdivision (4 x ½ = 2 marks)

16. Advantages of earthing up in crop production

* Improve tuber formation/root formation
* Pod formation in groundnuts
* Improve drainage around the crop
* Conserve water/soil
* Facilitate harvesting of tuber crops
* Root protection

(4 x ½ = 2 marks)

17. Reasons for training tomatoes

* Enable the crop to grow in the required direction and shape
* To facilitate certain operations i.e. spraying and harvesting to be carried out with ease
* To produce clean fruits which improve quality
* To increase yields
* To avoid crop affected by soil pests and some diseases

(4 x ½ = 2 marks)

 b) Reasons for cutting back pyrethrum

* To increase yields by encouraging growth of new shoots
* To reduce incidents of bud disease

(1 x ½ = ½ mark)

 SECTION B

18. a) 200kg = 10,000m2

 ? = 40m2

 200 x 40

 10,000 = 0.8kg (800gm) (2 marks)

 b) 20% (kg) Nitrogen

 30% (kg) Phosphorous pentoxide (P2O5) (Reject P or phosphorus)

 10% (kg) potassium oxide (K2O) (reject potassium or K alone) (mark as a whole) 1m

19. a) Chitting (1 mark)

 b) -Moist environment

 -Diffused light (2 x 1 = 2 marks)

 c) Ensure uniform growth after planting

 Ensure growth commences immediately after planting to make use of rain

20. a) E – Black jack (Bidens pilosa)

 F – Thorn apple (Datura Stramonium)

 G – Mexican marigold (Tagetes minuta)

 H – Oxalis (Oxalis Latifolia) (4 x ½ = 2 marks)

 b) The weed has bulbs which are underground and difficult to remove

 (1 x 1 = 1 mark)

 c) -Nut grass

 -Star grass

 -Couch grass (2 x 1 = 2 marks)

21. a) This is the physical relationship between input and output

 b) A Increasing returns production function (1 mark)

 B Constant returns production function (1 mark)

 c) A reason: Influence of favourable environmental conditions

 (1 mark for identity, 1 mark for reason) = 2 marks

22. a) V – shaped micro – catchment (Triangular)

 b) Use to conserve water for plants during dry seasons/drought

 c) -Semi circular bunds

 -Trapezoidal bunds

 -Contour bunds/furrows/contour ridges/contour stone bunds

 -Planting bits

 -Negarim (1 x 1 = 1 mark)

 SECTION C:

23. a) (i) Timely planting – escape pest attack

 (ii) Timely harvesting – escape attack in the field

 (iii) Proper tillage – expose soil born pests to hot sun

 (iv) Close season – starve the particular pests

 (v) Trapcropping – attract pest away from the main crop

 (vi) Crop rotation - Break the life cycle

 (vii) Planting resistant crop varieties – resistant to pest

 (viii) Field hygiene – to prevent spread

 (ix) Pruning – create micro climate hence prevent spread/prevent spread

 (x) Crop nutrition – crops grow strong and resist attack

 (xi) Destruction of alternate host – break the life cycle

 (xii) Use clean planting material – prevents introduction of the pest

 (xiii) Proper spacing – minimize spread of pest

 (xiv) Use of organic manure – discourage some pests

 (xv) Irrigation – overhead irrigation control aphids

 (12 x ½ for stating; 12 x ½ for explanation = 12 marks)

 b) (i) Deforestation/clean weeding/burning-exposes soil to agent of soil erosion

 (ii) Steep slopes – increases the speed of surface runoff hence erosive power of water

 (iii) Light soil/sandy soil – easily carried away by agent of soil

 (iv) Shallow soils – easily saturated with water and carried away

(v) High rainfall intensity – on bare ground lead to detachment of soil which is easily carried away.

(vi) Overstocking/overgrazing – lead to soil bare exposing the soil to agent of soil erosion.

(vii) Ploughing up and down the slope – create channels/rills which increase the velocity of running water hence erosive power

 (8 x ½ = 4 for stating, 8 x ½ for well explained statements) = 8 marks

24. a) (i) Conserve moisture – by preventing evaporation

 (ii) Modify soil temperature – through thermal insulation capacity

 (iii) Control weeds – smothering weeds

 Control erosion – through trapping soil particles and reducing erosive power of water

 (iv) Improve water infiltration – through reducing velocity of runoff

 (v) Improve soil fertility – upon decomposition

 (vi) Modify soil pH – upon decomposition through buffering effect

 (6 x ½ for stating = 3 marks, 6 x ½ for explanation= 6 marks)

 b) Role of agriculture in economic development

(i) Source of food supply – ensure healthy population which spend more energy in other aspects of economic development; save on foreign exchange used in importing food

(ii) Source of employment – source of income leading improvement in the standard of living

(iii) Provision of foreign exchange – used in purchasing raw materials, manufactured goods and servicing foreign debts

(iv) Source of raw materials – leading to establishment processing industries

(v) Provision of market for industrial goods – hence leading to establishment of industries to supply capital goods and raw materials

(vi) Source of money or capital – capital generated leads to improved standard of living, and financing of development projects e.g. infrastructures and social amenities.

 (5 x 1 mark for stating; 5 x 1 mark good explanation)

 c) (i) When the seeds are impure high seed rate is required to maintain optimum plant population.

 (ii) Higher seed rate is required in closer spacing than in widerspacing.

 (iii) Fertile soil can accommodate higher seed rate

 (iv) Crop for fodder and silage require higher seed rate

 (v) Method of planting such as broadcasting require higher seed rate

 (vi) Seeds with low germinated require higher seed rate

 (vii) Planting more seeds per hole require higher seed rate

 (viii) Crops establish as pure stand require higher seed rate than pure stand.

 (4 x 1 = 4 marks)

25 a) (i) Root vegetables – roots are used e.g carrots, radishes, beets and tulips

 (ii) Fruit vegetables – Fruit is used as food e.g. tomatoes, brinjals, pumpkins etc.

 (iii) Pod vegetables – eaten when white green or left to mature and dry e.g. legumes

 (iv) Bulb vegetable – bulbs used as food .e.g bulb onions

 (v) Leaf vegetables – leaves as vegetables .e.g. cabbages, amaranthus

 (5 x 2 = 10 marks) (5 x 1 for stating; 5 x 1 for giving good examples)

 b) Functions of a farm manager

 (i) Making decisions involving planning and operations on the farm

 (ii) Collecting information related to the enterprises on the farm

 (iii) Comparing standards of one enterprise with the set standards

 (iv) Detecting weaknesses and constraints and finding ways and mean of overcoming

(v) Keeping farm records up-to-date

(vi) Implimenting farm decisions

(vii) Taking responsibility/bearing the consequences of the outcome – losses or profit

(viii) Procurement of farm inputs

(ix) Supervision of farm workers

(x) Marketing of farm produce

(xi) Using the records to evaluate the performance of the farm

(xii) Reporting farm performance to the board of management

 (10 x 1 = 10 marks)