**MARANDA MOCK Agriculture 2024**

**Agriculture Paper 1 (443/1)**

**SECTION A (30 marks)**

1. **Four advantages of organic farming**

(i) Products are free from chemical residues;

(ii) It is environmentally friendly;

(iii) Livestock and farmer do not risk effects of poisonous chemicals;

(iv) Ozone layer is preserved;

(v) It uses locally available materials/cheap;

(vi) It maintains soil structure;

(vii) Provide food for the soil microbes

(viii) Enhances soil water infiltration and retention **(First 4 x½=2 marks)**

2.**Factors that increases seed rate**

(i) Seed impurity;

(ii) Low germination percentage;

(iii) Close spacing;

(iv) More seeds per hole / broadcasting;

(v) Early planting / dry planting; **(First 4 x½=2 marks)**

3.**Roles of organic matter in sandy soil**

(i) It improves soil capillarity;

(ii) It improves soil water holding capacity;

(iii) It binds soil particles/improves soil structure;

(iv) It improves soil microbial activities;

(v) Modiﬁes soil temperature;

(vi) It provides nutrients on decomposition;

(vii) It buffers soil pH. **(First 4 x½=2 marks)**

**4.Reasons for practicing minimum tillage**

(i) It conserves soil moisture;

(ii) It maintains soil structure;

(iii)It saves costs on land preparation/saves on time/saves on labour;

(v) It ensures minimum disturbance to plant roots;

(vi) Control soil erosion;

(vii) Reduces soil compaction by tillage implements;

(viii) Prevents loss of nutrients by volatilization/ prevent exposure of humus **(First 4 x½=2 marks)**

5. Define:

(a) **Crop Rotation**

Is the growing of crops of different families on the same piece of land in an orderly sequence; **(1 mark)**

(b) **Mulching**

Is the covering of the ground around a growing crop With organic matter or artiﬁcial sheets; **(1 mark)**

6.**Reasons for inverting soil slices during primary cultivation**

(i) To burry organic matter/weeds into the soil;

(ii) To expose soil to agents of weathering;

(ii) To expose pest/disease agents to predators/strong sun;

(iii) Bring up leached plant nutrients to the surface;

(iv) To encourage Water inﬁltration/aeration.  **(First 4 x½=2 marks)**

7.**Way of controlling couch grass**

(i) Mulching;

(ii) Cover cropping;

(iii) Crop rotation;

(iv) Timely planting;

(v) Proper spacing;

(v) Flooding;

(vi) Clean seedbed;

(vii) Deep cultivation  **(First 4 x½=2 marks)**

**8 (a) Vegatative parts used in propagating pineapples**

(i) Crowns;

(ii) Suckers;

(iii) Slips;  **(First 3x½= ½ marks**)

(b**)Disadvantages of vegetative propagation in pineapples**

(i) Transmits diseases;

(ii) Propagates genetic/varietal defects;

(iii) No uniformity in growth;

(iv) It is laborious/bulky;

(v) Vegetative materials cannot be stored for long. **(First 3x½=1½ marks**)

9. **Sources of underground water**

(i)Springs;

(ii)Bore hole;

(iii)Wells; **(First 3x½= 1½ marks**)

10. Define

(a) **Pollarding** - cutting back the crown and the top branches of a tree;**(1mark)**

(b) **Coppicing** - cutting down trees about half a meter from the ground; **(1mark)**

(c) **Lopping** - cutting one or more branches from the stem; **(1mark)**

11. **Information contained in a sales receipt of an egg seller**

(i)Date;

(ii) Quantity of eggs;

(iii) Price;

(iv) Amount/total;

(v) Buyer's name;

(vi) Name of the farm/farmer;

(vii) Signature;

(viii)Serial number;

(ix) Mode of payment (cheque/cash/in kind) **(First 5x½= 2½ marks**)

12**.Reasons for practicing agro-forestry**

(a**) Riverbank**

(i) Stabilize river bank/control river bank erosion;

(ii) Slow down speed of surface runoff;

(iii) Trap soil/debris in surface runoff;

(iv) Reduces risk of ﬂooding;

**(First 2x½= 1mark**)

(b)**Steep slope**

(i) Reduce speed of runoff;

(ii) Trap soil in erosive water;

(iii) Tree roots bind and stabilize the soil/maintains soil structure;

**(First 2x½= 1mark**)

13.**Disadvantages of plastic pipes**

(i) Can be gnawed by rodents;

(ii) Become brittle on exposure to strong sun;

(iii) Can burst at high pressure; **(First 3x½= 1½ marks**)

14. **Causes of blossom end-rot**

(i) Irregular watering;

(ii) Lack of calcium;

(iii) Excessive nitrogen application;

**(First 3x½= 1½ marks**)

15.**Define preference and choice**

It is the act of deciding on how to allocate available scarce resources to alleviate uses based on the farmers interests.

**SECTION B**(20 marks)

16**.Distinguish between straight and compound fertilizer**

(a)**Straight fertilizer** supply only one of the fertilizer element eg N, P or K while **compound fertilizers** supply two or the three fertilizer elements;

(1 mark)(**mark as a whole**)

(b) **Calculations**

100kg contains 20kgN/ha

200kg/ha contains ?

200kg/ha x 20kgN =4000/100kg 40kgN/ha

40kg/ha x 5 hectares= 200kgN

17. (a) **Splash erosion/rain drop erosion**; **(1 mark)**

(b) **How it occurs**

Soil is detached; by the impact of raindrops; **(2 marks)**

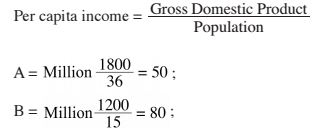
(c) **How cover cropping controls splash erosion**

(i) Reduces impact of raindrops;

(ii) Prevents movement of soil;

(iii) Plant roots bind soil particles; **(2 marks)**

18. (a) (i)



(ii) B;

(iii) B has a higher per capita income;

(iv) By creating employment/developing industries/increasing production;

19.(a)Black jack (Bidens pilosa); (**1 mark)**

(b)(i) Uprooting;

(ii) Slashing/mowing;

(iii) Cultivation; **(1 mark)**

(c)**A** -Contact herbicide;

**B -**Systemic herbicide/translocated; **(2 mark)**

(d) Has underground propagation structures; **(1 mark)**

**SECTION C**

20. (a) Risks and uncertainties in crop farming

1. **Fluctuation of commodity prices**. The farmer may not predict the future market prices.
2. **Physical yield uncertainty**. The farmer does not know how much to expect.
3. **Ownership uncertainty**. The farmer may lose part or the whole of the produce through theft, change in government policy, fire, death, association with other business.
4. **Outbreak of pests and diseases**. It will affect the expected outcome.
5. **Sickness and injury uncertainty**. The farmer or a member of his family or an employee may be affected and loses the ability to work due to sickness and injury.
6. **New production technique uncertainty**. The farmer may not be certain whether a new technology is as effective as the previous one.
7. **Obsolescence**. A farmer may invest in machinery that may be outdated within a short time.
8. **Natural calamities**. E.g. floods, drought, earthquakes, storms and strong wind may destroy the crops or kill the animals

**Stating 5 x1 mark (5 marks)**

**(Explanation 5x 1 mark)(5 marks) =10 marks**

(b) **Functions of young farmers club**

1. Participating in exhibitions and competitions at ASK shows.
2. Involvement in agricultural projects at club level.
3. Participating in YFC annual rallies.
4. Involvement in workshops & seminar related to agriculture.
5. Participating in national tree planting activities.
6. Participation in exchange programmes.
7. Participating in national ploughing contests**. ( 5x 1=5 marks)**

(c) **Reasons for land registration in Kenya**

1. Registered land can be used to secure credit facilities.
2. Registration minimises land disputes.
3. Security of tenure encourages long term investment projects/ensures investment on land.
4. Enables occupant to lease or sell part of the land.
5. Encourages underlying of soil conservation measures.(5**x1 = 5marks**)

21. (a) Ways in which Kenyan government can improve maize production to ensure food security

(i)Farmers training eg. in FTCs on improved methods of maize production.

(ii) Provision of extension services to advise farmers on modern maize production techniques eg. irrigation, use of certiﬁed, irrigation, pest and disease control to reduce cost of production.

(iii) Provision of subsidies on farm inputs eg. fertilizers.

(iv) Provision of credit facilities eg. through AFC, to ﬁnance maize farming operations.

(v) Imposing high taxation on imported wheat and maize products to discourage importation and protect local farmers.

(vi) Quality control to ensure production of high quality maize that can attract foreign markets.

(vii) Supporting research into new and improved varieties of maize for high yields.

(viii) Farm input supplies

(Xi) Provision of marketing services

(iX) Provision of drying and storage facilities

(xi) Provision of tractor - hire service.

(xi) Ensuring effective control of pests/diseases/weeds.

(xii) Ensuring effective soil and water conservation measures.

**(5 x 2marks) = (10 marks)**

(b)**Reasons for pruning**

(i)To make the plant take a desired shape.

(ii) To remove diseased parts to prevent disease spread.

(iii) To control cropping to ensure production of high quality fruits.

(iv) To ease penetration of sprays to minimise wastage.

(V) To control pests/diseases by eliminating the micro-climates.

(Vi) To facilitate light penetration and optimise photosynthesis process.

(vii) To remove dead/broken pans.

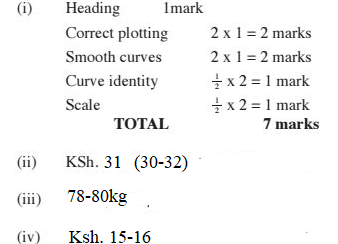
(viii) To remove old/unproductive parts on which resources are wasted.

(iX) To promote lateral growth e.g in tea

(X) To facilitate management practices e.g weeding and harvesting.

(**1 x 10 marks**)

22. (a)



(b) **Production of maize**

(i) **Seedbed preparation**.

' Bush clearing.

' Carryout primary cultivation.

- Carrying out secondary cultivation.

' Prepare land early during the dry season.

' Deep ploughing to remove perenial weeds.

' Harrow to medium tilth.

' Carry out soil and water conservation measures. **(4 x 1 = 4 marks)**

(ii**) Planting of maize**

' Plant at the onset of rains/dry plant.

' Space according to variety 75 - 90 cm X 20 - 30 cm.

- Plant one or two seeds per hole.

' Planting depth 2.5 - 10 cm depending on the moisture content.

' Plant manually or use planters.

' Use phosphatic fertilizer/organic manure at a ratio of 120 kg/ha. **(3 x 1 = 3 marks)**

(iii) **Harvesting maize**

' Harvest after 3 - 9 months.

' Harvest When the Whole plant dries/harvest according to market demand.

' Harvest manually by hand or use combine harvesters.

' Cut and stook the maize if harvesting is manual.

' Remove the cobbed maize from the husks.

(**3 x1 marks)**