LAINAKU 1 FORM FOUR YEAR 2015
AGRICULTURE PAPER 1 (MARKING SCHEME)

SECTION A

1. (i) Smell of forest soil
    (ii) Light in weight
    (iii) Brown colour
     (iv) Moist
     (v) Original nature of material not noticeable

    (½ X 4) = 2mks

2. - Consumable goods inventory
    - Permanent goods inventory   (½ X 2) = 1mk

3. Give two underground water sources in the farm
    - Boreholes
    - Springs
    - Wells   (½ x 2) = (1mk)

4. (i) Grass strips   (v) Cropping system
    (ii) Cover cropping   (vi) Strip cropping
    (iii) Contour farming   (vii) Grass Vegetated waterways
    (iv) Mulching   (viii) Afforestation
                                     (vi) Agro forestry   (½ X 4) = 2mks

5. (i) Use of metal deflectors
    (ii) Clear around the granary
    (iii) Dry the grains properly
    (iv) Use predators   (½ X 4) = 2mks

6.   Stem – tuber   -   Irish Potato
     Splits   -   Pyrethrum/Spring Onion/Most Pasture grass
     Bulbs   -   Onion
     Bulbis   -   Sisal   (½ X 4)   =(2mks)

7. Roguing – refers to uprooting and destroying infected plants;
    Gapping - filling up or replacement of dead seedlings   (1 X 1) = 1 mks

8.   * Sulphur
      * Magnesium
      * Calcium   (½ X 2) = 1mk

9.   * Cause overheating
     * May cause decomposition   (½ X 2) = 1mk.

10. * Brown or dark sports or streak on leaves
     * Rotting of leaves, flowers, fruits steams and roots
     * Canker on stems
     * Premature defoliation   (½ x 3) = (1 ½ mks)

11. (a) Used to control viral diseases
     (b) Used to produce large population of propagates

(c) It is fast to establish the propagates

(d) Requires less space. (½ X 4) = 2mks

12. Composite maize seeds are those obtained from a number of maize varieties with diverse genetic composition allowed to inter-pollintate. (1 X 1) = 1mk

13. (a) Death of terminal bud
     (b) Chlorosis
     (c) Leaf roll
     (d) Flower and bud shedding (½ X 3) = (1 ½)

14. Cross strip   Catchment basin
    Mound   Contour stone buds
    Run-off strips
    Countour bench terrace   (½ X 3) = 1 ½ mks

15. (i) It is easier no special skill
    (ii) Cheaper
    (iii) Quicker / less laborious
    (iv) Rapidly provide a good ground cover
    (v) Ideal method for small seeds of grass. (½ X 2) = 1 mk

16. - Land tenure reform
    - Land consolidation
    - Land adjudication and Registration
    - Settlement and resettlement (½ X 4) = 2mks

17. A fertilizer containing **all** primary macrO – nutrients (1 X 1) = 1mk

18. (i) Can burst under high pressure
    (ii) Become brittle if exposed to the sun
    (iii) can be grained by the rodents
    (iv) Burst easily when stepped on (½ X 3) = 1 ½ mks

19. Control soil erosion
    Application of fertilizer in splits
    Application of fertilizer at appropriate stage of growth
    Top dress when just about to rain/ when soil is moist
    Apply the optimum rate of fertilizer (½ X 4) = 2mks

20. Kikuyu grass   Giant setaria
    Nandi setaria   Rhodes grass   (½ X 4) = 2mks
    Molasses grass

SECTION B   (20MKS)

21. (i) E - Head smut   1 mk

         F - Maize streak / maize leaf rust   1 mk

         G - Cob smuts / Head smut   1 mk

(ii) Maize streak - Timely planting   Close season - Maize leaf rust
     -           Field hygiene   Crop rotation

- Rogueing   Plant resistant
  Crop rotation   Early planting   (1mk)

(iii) Maize stalk borer   (1mk)

22. (a) Ability of forage stand to maintain a particular number of livestock units area   (1 X 1) = 1mk

(b) Refers to the number of livestock units maintained per unit area of land   (1 X 1) = 1mk

(c) 5/100 kg x 0.5 X 365 = 9.125 tones / year   (1 X 2) = 2mks

(d) <u>30 tones</u>   =   3 cows
9.125 tonnes/ cow/ year

                                       1 x 2 = 2mks

23.   (a) Prevent excessive loss of moisture / maintain high relative humidity   (1 x 1) = 1 mk

(b) Watering regularly
Pest and disease control
Weeding   (2 X 1) = 2mks

(c) easier to carry out operation like weeding
It is convenient to move from one site to another depending on weather needs
It is less labourious

24.   (a) Wild Oat / Avena fatua   (1 X 1)   = 1mk

(b) Wild oat belongs to annual weed /narrow leafed   (1 x 1) = 1mk

(c) Wheat   (1mk)

(e)   Mechanical method: pulling by hand, hand cultivation.
-                              Chemical method ; use of herbicide   (2 X 1) 2mks

25.   (i) CAN - it is neutral fertilizer and thus reduces acidity in the soil (2mks)

(ii) 21 % N is SA is contained in 100 kg
Therefore in 200 kg SA = <u>200</u> x 21
                100
= 42kg Nitrogen will be availed to the soil   (2 X 1) 2mks

(iii) *Highly soluble in moisture
*Highly leached
* Used for vegetative grow   (1 x 1) 1mk

SECTION C

26.   (a) Objectives of land tenure reforms
                               (6mks)

(i)   To achieve increasing productivity of both and labour
(ii)   To encourage commercial instead of subsidence production

(iii)   Encourages farmers to invest more through offering security of tenure

(iv)   To achieve flexibility in farming patterns to meet changing national and market demands

(v)   To achieve effective utilization ofland resources including settlement of unsettled land

(vi)   Encourage conservation measures   (1 X 6)
= 6 mks

(b) Advantages of Title deeds
  (i)   Title deed can be used to secure credit facilities necessary for land development, hence encouraging
  (ii) Since the registration confers security of tenure any land disputes are minimized
  (iii) Tenure security encourage to invest in long term and permanent projects
  (iv) Enables the occupant to lease all the land or part of it and thus get extra-income.

(c) Management of grass pasture immediately after planting to utilization
   - control weeds by either slashing or uprooting
  - Use selective herbicides to control weeds
  - Topdress with nitrogenous to replenish the soil nutrients
 - Apply nitrogenous fertilizers after topping fertilizers after topping in splits / apply fertilizers by broadcasting Method.
-                                Carry out toping/remove the stemy fibrous material left over after grazing.
-                                Toping done using tools e.g. sickle
-                                  Irrigate during dry spells
-                                  Control pests such as mole appropriately
-                                  Fence off the pasture land to avoid disturbance of pasture.
-                                  Avoid grazing when the pasture is too young.
-                                  Practice light grazing in the initial phase of pasture establishment
  (any 10 X1) = 10mks

27.   (i)   - Clear the land using appropriate tools e.g. slashers, pangas
    - Carry out primary cultivation using jembe, ploughs
   - Carry not secondary cultivation 4 – 6 weeks later to medium tilth using harrow or jembes
   - Land preparation done early / dry season
  - Eradicate all perennial weeds e.g. couch grass   (1 X 5) = 5msks

   (ii) - Select suitable variety to ecological zone
      - Use certified seeds
     - Plant at onset of rains / early planting
     - Plant a spacing of (30 – 60) cm x (10 – 15) cm depending on the variety
     - Dig hole to a depth of 2.5 cm – 5 cm
     - Use phosphoric fertilizer / DAP at a rate of 200 kg/ha or a teaspoonful per hole.
     - Put 2 – 3 seeds per hole   (7 x 1) = 7mks

  (iii)   <u>Field management practices</u>
-                                Gap seeds where germination faulted one week after planting
-                                Control weeds before flowering
-                                Control weeds mechanically by use of appropriate herbicides or any other suitable method
-                                Parts e.g. Aphids, American Bollworm, bean fly should be controlled using appropriate pesticide

-   Disease e.g. rust, hallo blight should be controlled using
   appropriate methods   (5 X 1) = 5mks

(iv) Harvesting

-   Harvest before the whole plant s completely dry/after 3 – 5
   months after planting
-   Done by uprooting the whole plant
-   Done during dry spell   3 X 1 = 3mks

28   (a)- The purpose of the crop or the use for which the crop was
   intended   e.g. maize
        Crop meant for silage making should be harvested before flowering; while for grains done when grains
        matures
-   Market demand - consumers preference should be considered
   e.g. green maize or dry maize
-   Concentration of the required chemicals – eg coffee harvested
   when berries are ripe: Tea harvested two leaves and a bud.: Gives high quality coffee and tea
-   Weather conditions – most crops area harvested during dry
   season to prevent losses
-   Prevailing market price and profit margins - In some crops
   harvesting may be delayed to as much a month so as to wait for better prices. (1 mark for mentioning and
   1 mark for explanation)   (2 X 5) = 10 mks

   (b) Harvesting of pyrethrum
        - Flowers are picked selectively
        - Pick individual flowers with 2 -3 rows of disc florets open
        - Picked flowers should not be compressed to discourage heating and fermentation
        - Picked flowers should be put in woven baskets
     - Pick individual flowers with four fingers and thumb by twisting   (1 X 5) = 5 mks.

(d) Advantages of over –head irrigation
   - Water evenly distributed
   - Less wastage of water
   - practiced on sloppy areas
   - Foliar feeds can be applied with irrigation reducing the labour costs.
  - Easy to more sprinkler systems from one place to another. (1 X 5) = 5 mks

1. – Keeping of livestock with occasional random Moment from one place   to another
    -Local breed of livestock one kept.
     -Practiced in arid and semi – arid areas.($2×\frac{1}{2}=1$mks)

2. Through vectors.
    Through contacts.
    Through. inhalation of contaminant
    Through ingestion of contaminated food and water.($\frac{1}{2} × 2 = 2$mks)

3. Through nostrils.
    Through the mouth.
    Through the eyes.
    Under the skin coetaneous($\frac{1}{2}$ ×4=2mks)

4. Miracidium.
    Sporocyste.
    Cercariae.
    Metacercaiae.($4× \frac{1}{2}=2$mks)

5. Gumboro disease/infection based disease.
    Newcastle.
    Fowl pox.   ($3× \frac{1}{2}=1\frac{1}{2}$mks)

6. anemia
    Irritation.
    Damage to wool.
    Retarded growth inland.
    Bit injury to the skin.   ($4× \frac{1}{2}=2$mks)

7. Animal body weight/size.
    Level of milk production.
    Physiological state of the body
    Amount of food already in animal body.
    Age of the animal   ($4× \frac{1}{2}=2$mks)

8. Meal cants e.g. Coclidiastats.
    Antibiotics e.g. Tetracyclines.
    Tranquilizers e.g. Stilbestrol.
    Grass.   ($4× \frac{1}{2}=2$mks)

9. Deworm the animal.
    Wash/ clean the shed,
    Reduce the feeding gradually.
    Apply pesticides to control external parasites
    Move the sow to the furrowing pen   ($3× \frac{1}{2}=1\frac{1}{2}$mks)

10. Cleaning the fish to remove the mud &worms.
    Removing scale and slurry.

Cutting/ operation the fish on the side
Cleaning the abdomen cavity thoroughly.
Keeping fish in open containers. $(4 \times \frac{1}{2} = 2mks)$

11. Source of nectar.
    Maturity stage of honey and harvesting time.
    Method of harvesting.
    Processing methods
    Time harvesting $(4 \times \frac{1}{2} = 2mks)$

12. Old age.
    Health of the boar
    Serious injury on the boar.
    When daughter is used as replacement stocks/to avoid inbreeding.
    When the boars too fat or lazy.
    Poor performance of the offspring.
    Bad tempered.
    Lack of libido/infertile boar. $(4 \times \frac{1}{2} = 2mks)$

13. Avoid dumbness from the ground.
    To hasten drying on the beddings.
    For security/attacks from predators. $(2 \times \frac{1}{2} = 1mks)$

14. Lack of balance diet.
    Overcrowding.
    Inadequate laying nests.
    Idleness.
    Poor handling of the eggs.
    Inadequate feeding.
    Poor/inconsistent rain. $(4 \times \frac{1}{2} = 2mks)$

15. Excitement or frightening of the cow.
    Hunger.
    Pain.
    Strange surrounding u/nfamiliar.
    Change of the milking person.
    Change of the milking schedule.
    Effects of oestrus. $(4 \times \frac{1}{2} = 2mks)$

16. Oil cooled system.
    Air cooling system. $(2 \times \frac{1}{2} = 1mk)$

17. Power takes off shaft.
    Draw bar.
    Hydraulic system.($(3 \times \frac{1}{2} = 1\frac{1}{2}mks)$

18. for ploughing.
  For ridging.
  For harvesting root crop.
 Opening fallow for planting.
  Weeding row planted crops. $(4 \times \frac{1}{2} = 2mks)$

19(a) A bar bed wire fence. (1×1=1mk)

  (b)A- Strut.   B. -Strainer. D- dropper E-standard post $4× \frac{1}{2}$=2 mks

   (c). -Prevent wires from sagging/make wires firm. (1×1=1mk)

20(a).Hand spraying rejects spraying. (1×1=1mk)

   (b) -Waste of chemicals.
       - Less body coverage/hidden parts are not covered.
      -Slow/not suitable for many animals.
      - Animal movement prevent complete wetting (2× 1=2mks)

(c) -Chemicals should be well diluted collect dosage.
    -Pump should be in collect working condition.
   -The day should be calm and not windy.
   -The animal should be completely vetted. (2× 1=2mks)
21.(a) Breeding aprons/chute/sire in harness (1×1=1mk)

   (b)To prevent further mating. (1×1=1mk)

   (c)7-14 days/1-2 weeks after birth. (1×1=1mk)

   (d) C –Docking   D-hoof trimming (2× 1=2mks)
    (e) Ringing. (1×1=1mk)

22. (a) Heat method. (1×1=1mk)

   (b)Honey can be spoilt by heat. (1×1=1mk)
   (c)-Crashing and streaming.
     -Centrifugal method. (2× 1=2mks)

23. (a) - restrain the bull.
     -Holds the burdizzo with one hand locate the spermatic cord.
     -Place the spermatic cords of one testicle between the jaws of the burdizzo.
    - Press the handle of the burdizzo to crush the spermatic cords.
    -Locate the spermatic cord in the other testicles and crush.
     - Set the animal free. $(1× 6 = 6mks)$

 (b) Mature female tick lays eggs on the ground.
     -   Eggs in the ground hatch into larvae.
     -   Larvae climb into the first host and attach themselves and feed on blood and become engorged.
     -   Engraved larvae molts into nymph.
     -   Nymphs feed on the same host and become engorged and then dropped to the ground to molt.
     -   The emerging adults find a new host on which to feed.
     -   The adult female feed on the second host and mate.
     -   The adult female drops off the ground to lay eggs. $(1× 7 = 7mks)$

23 (c)clean and healthy milk man.
   Clean milky utensils.
    clean milking cows.
    clean milking par lour
    Avoid flavour in milk.

Filtration of milk/ cool it before storage
Healthy milking herd.

$$1 \times 7 = 7mks$$

24. (a) (i) Virus

   ((ii)- There are several sudden deaths.
       -Dullness/loss appetite.
        -Coughing and sneezing and grasping.
        -Paralysis of the legs and wings (staggering).
       -Twisting of the neck.
        -Breathing difficulties.
       - Greenish yellow diarrhea. $1 \times 7 = 7mks$

   ((iii)-Proper sanitation vaccination.
       -Slaughtering the infected birds.
       -Quarantine.
       -Vaccination $(1 \times 4 = 4mks)$

24 (b) Body size/weight of the animal.
   - age of the animal
   -Environment temperature.
   -Type of food eaten.
   -Type of work done.
   - Level of production
   -Species of animal.
   -Physiological status $(2 \times \frac{1}{2} \times 8 = 8mks)$

25(a)   one bull may serve many cows.
        Control breeding disease.
        Control breeding parasites.
        Prevents heavy Sires injuring small cow.
        Reduce the expenses of keeping bulls.
        Small scale farmer can afford the service of a superior bull.
        Control inbreeding.
        A useful research tool
        Control breeding
        Over weight bulls can still have a chance to become a sire
       It enables economical use of semen
        semen can be transported from one region to another
         semen from superior bull can be used long after they are dead

   $(1 \times 10 = 10mks)$

25. (b) Proper Feeding/ nutrition.
       Proper selection and breeding.
       Good housing/hygiene/sanitation.
      Good disease control.
       Proper parasite control.
       hoof trimming. $2 \times 5 = 10$