443/1
MOKASA JOINT EVALUATION TEST – 2015
AGRICULTURE PAPER 1
THEORY
MARKING SCHEME

1.

- Drought and aridity
- Diseases and parasites
- Attack by wild animals
- Soil erosion due to overstocking
- Poor pasture species
- Inadequate land due to overpopulation

(4x½=2)

2.

- Crops make maximum of rainfall
- Crop seeds germinate faster since the soil is warm.
- Crops are able to escape the attack by pests and diseases.
- Crops benefit from available nitrogen flush
- It enables early supply of crops to the market when they can fetch high prices
- Crops outgrow and smother weeds
- It reduces competition for available labour/machinery during peak production periods.

(4x½=2)

3.

- Good supply of plant nutrients and oxygen
- Good depth
- Good drainage
- Abundance of useful soil micro-organisms
- Adequate water retention
- Free from pests and diseases.

(4x½=2)

4.

- Very steep land
- Water logged/marshy land
- Forestall/bushy area
- Aridity
- Tse-tse infected land

(4x½=2)

5.

- Size of the farm
- Type of the enterprises in the farm
- Source of the water
- Method of conveying the water.

(2x½=1)

6.

- Show the health condition of the animals
- Used in selection/culling of animals
- Help trace history of diseases for good treatment
- Show when to carry out routine practices such as vaccination, deworming
- Show costs of controlling and treating diseases and parasites.

(4x½=2)

7.

- Consumable goods inventory record
- Permanent goods inventory record

(2x½=1)

8.

- Where there are no choices
- Where resources are free/unlimited

(2x½=1)

9.

- Promotes growth
- Controls soil farm pests
- Controls non-acquatic weeds
- Avails the right relative humidity for pollution

(3x½=1½)

10.

- Topdressing with nitrogenous fertilisers/organic matter
- Practising controlled grazing to avoid denudation
- Topping to remove unpalatable stems and promote growth
- Controlling pests mainly moles, termites, colust
- Irrigating where possible
- Controlling weeds

(4x½=2)

11.

- Quantity of forage available for ensiling
- Number of animals to cater for
- Length of the dry period to feed forage

- Bulkiners of the forage.

(3x½=2)

12.

- Increasing compaction to decrease aerobic fermentation
- Wilting materials before ensiling
- Avoid rapid filling of the silo
- Sprinkling some water

(2x½=2)

13.

- The type of soil
- Presence of deep rooted weeds/rhizomatoes weeds
- Soil moisture content
- Conditions of implement available

(4x½=2)

14.

- Reduces the speed of run-off hence lowering the erosive power
- Reduces speed of raindrop in preventing movement of soil
- Organic matter from leaves bind the soil particles together
- Roots of cover crops bind the soil together hence protecting from being carried by water.

(4x½=2)

15.

- Parasites
- Pathogens
- Predators
- Pests
- Weeds

(5x½=2½)

16.

- Aeration
- Drainage
- Capillarity
- Water retention capacity

(3x½=1½)

17.

- Contact herbicide kill the part of the plant with which they come into contact with whereas systemic herbicide are absorbed by any other part of the plant and trans-located to all parts of the plant, therefore killing the whole plant.

2 marks (mark as a whole)

18.

- Encourage early formation and development of roots
- They dissolve slowly/are less reached hence stay longer in the soil

(2x½=1)

SECTION B

19. a)i) Trelising (½ mark)

ii)

- Facilitate easy carrying out of routine practices e.g. spraying
- Prevent soiling of fruits/clean fruits harvest
- Control fruits from being infected by soil borne pests
- Plant is well aerated

(2x1=2)

b) $\frac{\text{Plant population}}{\text{spacing}} = \frac{(4\text{mx}100) \times 3\text{mx}100}{60\text{cmx}60\text{cm}} = 33 \pm 1$ (1½marks)

Award
½MF formula
½MF calculate
½M = Right answer

20. a) P – Sugar care sett/cutting (½ mark)
Q – Green top sugar cane (½ mark)

b) P – produce roots easily as Q
may rot easily before root production (1 mark)

c) Dipping in hot water at 50°C for 2-3 hours/52°C for 1½ - 2 hours (1 mark)

21. a) H – single stem pruning (½ mark)
J – multiple stem pruning (½ mark)

b)

- Allow easy picking/spraying
- No breakages of the stem/branches
- Provide good ground cover 2x1 = 2 marks

c)i) Annual pruning
ii) Removal of secondaries, tertiaries and laterals which have produce two crops
iii) Changing of cycle after 4-8 years (2x1 = 2 marks)

22. a) V – platy structure (½ mark)
W – Blocky structure (½ mark)

b) V- top horizon of forest soil/clayed soils (½ mark)
W – clay soils (½ mark)

c)

- Poor soil aeration
- Poor drainage leading to water logging
- Poor root penetration/root tuber expansion (2 x1 = 2 marks)

23. a) Stalk borer (Busseola fusca) (½ mark)
b)

- Make holes on maize leaves causing windowing effect
- Bores through maize cobs/stems
- Lower the quality/quantity of maize grains
- Damage the central shoot of the plant (2x1 = 2 marks)

c) Sorghum/sugarcane (½ mark)

24. Describe the field production of tomatoes under the following subheadings
a) Field management practices (7 marks)
b) Grading (3 marks)

a) Field management practices
(i) Timely gapping
(ii) Water regularly
(iii) Top-dress with nitrogenous fertilizers
(iv) Weed early and regularly
(v) Stake tall varieties
(vi) Prune to remove excess suckers
(vii) Control pests such as American bullworm using appropriate method
(viii) Control diseases like tomato blight by spraying appropriate chemical
(7x1 = 7 marks)

b) Grading
Based on;
(i) Degree of ripeness
(ii) Level of size
(iii) Disease/pest attack
(iv) Variety (3x1 = 3 marks)

c) Explain five factors considered when designing a crop rotation programme (10 marks)
(i) Crop nutrient requirements; Gross feeders should come first in the rotation programme.

(ii) Root depth of crops; Deep rooted crops should be alternated with shallow rooted crops.
(iii) Variety: Crops that belong to the same family should not follow each other in a rotation programme as they are attacked by same pests and diseases.
(iv) Weeding: Crops that are difficult to weed should be alternated with those that are easy to weed.
(v) Soil fertility: Legumes should be included to help fix nitrogen
(vi) Soil structure: Fallow or grass lays should be included in the programme as their roots and other decomposed organic matter bind the soil particles.

2x5 = 10 marks
1 mark for stating
1 mark for explanation

SECTION C: (20 marks)

25. a) Explain ten factors that influence soil erosion (10 marks)

- The amount and intensity of rainfall; when the amount and intensity is high the top soil gets saturated with water and erosion occurs taking soil to rivers.
- The slope of land; The steepness of the slope increases the speed of runoff and erosion.
- Soil type; Sandy soil is saturated easily and eroded quickly than clay soil.
- Soil depth; Shallow soils easily get saturated and eroded
- Vegetation cover; Vegetation on the soil and plants canopy prevent exposure of soil to erosion.
- Overstocking; uncontrolled grazing of large numbers of livestock overgraze leaving the ground bare for erosion.
- Deforestation; indiscriminate removal of trees exposes the ground to heavy rainfall and erosion.
- Indiscriminate burning of vegetation before cultivation; Exposes the soil to wind and rain erosion.
- Clean weeding; Exposes unprotected soil to agents of soil erosion
- Ploughing up and down the slope; exposes loose soil to erosion.

Stating ½ mark x 10 = 5 marks
Explanation ½ mark x 10 = 5 marks (10 marks)

b) Describe six benefits of land consolidation (6 marks)

- Enables proper supervision of land
- Enables economic use of time, saving transportation costs.
- Government extension service is made available
- Proper farm planning and crop rotation programmes can be initiated.
- Soil conservation and land improvement using farm mechanization can be initiated
- Construction of permanent farm structures is possible
- Farm operations have the benefit of economics of scale

- The farm title deed can be used to acquire loans
- Control of weeds, pests and diseases becomes easier

(6x1 = 6 marks)

c) Explain four main objectives of establishing the early African settlement schemes

(4 marks)

- Ease the population pressure within the African reserved areas.
- To increase the Agricultural production by making use of idle land uninhabited
- To create employment by producing enough agricultural products for use and excess for sale.
- To control tsetse flies in tsetse inhabited areas like Lambwe (Valley in South Nyanza) (4x1 = 4 marks)

26. a)i) Stocking rate refers to the number of animals maintained per unit of land while carrying capacity is the ability of the forage stand to maintain a particular number of livestock units per unit area.

(2 marks as a whole)

ii) Advantages of rotational grazing

- Livestock make maximum use of pasture
- Reduces build-up of pests and diseases
- Animal waste is distributed evenly in all fields
- Pasture is given time to regrow before it is grazed again.
- Excess pasture can be harvested and conserved/sold
- Possible to apply fertilizers in plants of the pasture which are not in use.
- Reseeding and weeding can be done (5x1 = 5 marks)

iii) Precautions when harvesting of coffee

- Pick the red berries (cherries) only
- Sort out the berries to remove unripe/diseased/over-ripe
- Deliver the berries to the factory the same day they are harvested.

(3x1 = 3 marks)

b)i) Harmful effects of weeds

- Complete with crops for nutrients/space/light/soil moisture reducing yield.
- Some are parasitic crops leading to stunted growth
- Some weeds are allelopathic e.g. couch grass exudate toxic substance which supress the growth of maize crops.
- Some weeds reduces the efficiency of the workers in a maize field.
- Some weeds harbour insect pests and other diseases which spread to the growing maize crop.

(5x1=5 marks)

ii) Cultural method of controlling crop diseases.

- Use of healthy planting materials

- Field hygiene/rogueing/use of clean implements
- Proper seedbed preparation
- Proper spacing to control spread of diseases in certain crops such as rosette in groundnuts
- Heat treatment e.g. to control ration stunting disease in sugarcane
- Proper drying of cereals and pulses to minimise storage of pests
- Use of resistant varieties
- Proper plant nutrition to avoid nutrient deficiency diseases
- Planting certified seeds
- Pruning to create unfavourable microclimate
- Closed season – to break the life cycle of pathogens
- Crop rotation – break the life cycle of pest
- Controlling of vectors – helps stop the spread of diseases.

(5x1 = 5 marks)

MOKASA KCSE AGRICULTURE PAPER 2 2015

MARKING SCHEME

SECTION A[30MARKS]

1.Angola goat [0.5mks.]

2.-Nearness to nectar producing flowers.

-Shady/cool place/bushy.-Accessible to water.

-Safe distance from livestock/homestead/road.

-Away from disturbances and noise.-Protected from predators.[1.5mks]

3.-Control stocking rate.-Control water pollution.-Supply food.-Control predators.

-Aeration of water by flowing.-Appropriate depth.-Right maturity harvest.[2mks.]

4.-Avoid poisoning by chemicals;-Discourage insect pests;-Avoid tainting milk.[1mk.]

5.-Fresh water snail/Mud snail.[0.5mk]

6.18-22days[0.5mk.]

7.Any time between 6.00 pm and midnight.[1mk.]

8.-More water when the temperature is high;-Dry food demands more water;

-Heavy producers and draught animals demand more ;-Body size;-Species of the animal.[2mks.]

9.-Sash clamp ;-G clamp ;-Quick action vice ;-Table clamp .[1.5mks.]

10.-Check length of work ;-Check angle of work ;-Check level of work ;

-Check square of work;[1.5mks.]

11.-Manouvre a corner without skidding;-Transform circular motion of propeller shaft to traction of the hub ;-Enables wheels to last long.[1.5mks.]

12.-Serrated discs ;-Off-setting the gangs ;-Deep penetration ;-Harrowing when the soil has appropriate moisture ; [1.5mks]

13.-Meat;-Milk;-Hide;[1.5mks.]

14.25th-29th October2014[0.5mks.]

15.-Starts to build a nest using her fur;-Goes off food;[1mk.]

16.-Piece of wood is very small;-Surface required not very smooth;[0.5mks.]

17.-Checking perpendicularity of a building wall;[0.5mks.]

18.-Fleece wholly covers the body;-Open white face/does not suffer from blindness;-Hornless/docile/hardy;-Lambing % of100-125;-Fleece heavy and of good length; [2mks.]

19.-Loss of hybrid vigor;-Decline in fertility;-Reduced performance;-Pre-natal mortality;[1mk.]

20.-Anthrax;-Black quarter;-Scours; Contagious abortion;-Mastitis;-Calf pneumonia.[2mks.]

21.-Ear notching;-Tattooing;-Ear tagging;[1mk.]

22.-Field with obstacles;-Field with hard pans;-Field with sticky soil;-Very dry soil;

[1.5mks.]

23.-Dullness;-Muscular twitching;-Staggering;-Animal falls and is unconscious;-Animal lies with the body stiffening;-Body functions fail;-Loss of appetite;-Stomach contents drawn to the mouth causing lung fever;[1.5mks.]

24.-Provide nutrients for foetal growth;-Energy for parturition;-Healthy offspring;

-Healthy dam;-High milk yield afterbirth;[2mks.]

SECTION B[20MKS.]

25.[a]-The span of the building expands at the top out wards;[1mk.]

[b]-Tie beam/cross tie;-Rafter batten;-Struts;[2mks.]

[c]-Protects the rafter from attack by pests/disease/weather;-Attachment of gutters;-Add beauty to the structure;[2mks]

26.[a]-A—very cold ;-B—very hot;--C—optimum temperature;-D—draught from one direction;[2mks.]

[b]-Use a thermometer;[1mk.] [c]-Spreads wings;-Pants/wide open beaks;Lie on their abdomen flat;-Make a lot of noise;-Drink a lot of water;[2mks]

27[a]Protect the sow from lying/trampling on the piglets;[1mk.]

[b]-Dunging area;-Exercise area;-Basking area for piglets;-Resting area;[2mks.]

28.[a]-Wool shearing;[1mk.][b]-Shearing on a clean floor free from grease and oil;

-Done during a dry season;-Care taken not to cut skin,testicles,udder,teats;[3mks.]

29.[a]-Stores food temporarily;-Moisten the food;[[2mks.].

[b]-Contains micro organisms that digest cellulose.[1mk.]

SECTION C[40 MARKS]

30.[a]-A young animal not parturated more than three times;-Productive animal from records or productive parents;-Physically fit with no deformities;-Healthy;

-Body conformation that adheres to the type of the animal;-Temperament or behavior that shows docile and calm;-Good quality products ;-Mothering instinct that is good;-Adaptable to the climatic conditions;-Prolific in bringing forth many off springs.[10mks.]

[b]-Cause anemia by sucking a lot of blood;-Deprive host food causing emaciation;-Damage tissues and organs exposing the host to secondary infection;-Spread diseases to healthy animals;-irritate the host causing rubbing

against obstacles and damaging skin and coat;-Cause obstruction of internal organs leading to constipation;[5mks.]

[c]-Burning infested pastures kills all stages of ticks;-Ploughing the pasture desiccates the ticks in the sun;-Top dressing the pasture with lime or acaricide;-Fencing the pasture keeps away strange animals;-Rotational grazing and pad docking starves the ticks to death;-Hand picking the ticks and killing them;[5mks.]

31.[a]-Lack of food ;-Outbreak of parasites and diseases;-Sun lights over heating the bee hive ;-Bad smell from the surrounding areas;-Presence of more than one queen;-Infertility of the queen;[5mks.]

[b]-Clean and disinfect far rowing pen;-Place dry ,warm bedding in the pen;-Provide a far rowing crate;-Wash the sow with water and soap;-Dust with an appropriate chemical to control external parasites ;-Isolate the sow to the far rowing pen 3 days before far rowing;[5mks.]

[c]-Cause---virus/burna virus[1mk.]

-Attacks---poultry/birds [1mk.]

Symptoms are:

-Gland above the vent swells/bursa ;--Egg production declines ;-Birds develop respiratory distress ;-Loss of appetite/low water intake ;-Drooping wings ;-Hemorrhage of the muscles /swollen liver/spleen/kidneys;-Restlessness;-Birds are sleepy .[6mks.]

Control:-Vaccinate the birds ;-Farm hygiene ;-Administering vitamins B2;[2mks.]

32.[a]-Cheap to acquire;-Work out put higher than human power;-Does not require skills ;-Can work well in areas where tractor cannot operate like small rugged areas;-Can be used in steep/sloppy areas where a tractor cannot ;-Animals provide manure and biogas;[5mks.]

[b]-Increases efficiency of machines hence reducing wear and tear;-Cools the engine by dissipating the heat created by rubbing surfaces acting as a seal ;-

Prevents rusting of stationery machinery;-Acts as a cleaning agent by absorbing dust, dirt, soot, and metal chippings from the oil to the sump ;[4mks.]

[c]-Availability of the materials ;-Workability of the materials ;-Durability of the materials ;-Strength of the materials ;-Cost of the materials ;-Use or purpose of the structure ;-Suitability of the material to the prevailing weather conditions;[6mks.]

[d]-High standards of cleanliness ;-Dryness and warmth of the pen;-Adequate space for feeding ,watering exercise; -Proper lighting ;-Proper drainage ;-Draught free as a precaution against pneumonia ;-Proper ventilation ;-Single housing to avoid infection .[5mks.]