**FORM FOUR AGRICULTURE - 443/2**

**PAPER TWO MARKING SCHEME**

**DECEMBER 2021**

**END OF TERM -2 -2021**

 **SECTION A (30MARKS)**

1. Harmful effects of ticks on a cow.
* They suck blood causing anemia
* They transit diseases causing organisms.
* They cause irritation and discomfort to the cow.
* They cause wounds which are routes for infections.

3x1/2= 11/2mks

1. Methods of controlling mastitis
* Complete milking
* Use proper milking technique
* Administer dry cow therapy.
* Observe proper hygiene in the farm

4x1/2=2mks)

1. Drift lambing is where all pregnant ewes are put together in one padlock and then separated as they lamb while in pen lambing, ewes are separated from others when they show signs of lambing and put in individual pens.

2x1=2mks

1. Channels through which Kenyan beef farmers market their products.
* Kenya meat commission (KMC)
* Livestock marketing division.(LMD)
* Local slaughter houses.

3x1/2 = 11/2mks

1. a) Factors that lower the quality of concrete.
* Impurities/ foreign materials.
* Inappropriate mixing ratio/ wrong ratio
* Quick drying/ premature drying.
* Presence of large sizes of aggregates.

2x1/2=1mk

 b) Reasons for treating timber.

* To prevent warping or bending of timber.
* To prevent fungal attack or rotting of timber.
* To enable timber to get maximum strength.
* To reduce pest attack.

2x1/2= 1mk

1. Guernsey 1/2x1=1/2mk.
2. Functions of the rumen in food digestion.
* Synthesis of vitamin B complex
* Synthesis of amino acid from ammonia.
* Fermentation of food.
* Synthesis of vitamin K.
* Breakdown of proteins to peptides, amino acid and ammonia .3x1/2=11/2mks
1. Tools used when laying foundation of a farm building.
* Spint level
* Tape measure
* Mason’s hammer
* Mason’s square
* Mason’s trowel
* Plumb bob. 4x1/2 =2mks
1. Factors considered when sitting a fish pond.
* Topography of the land.
* Type of soil.
* Accessibility
* Security of the area.
* Permanent Source of water. 4x1/2= 2mks
1. Function difference between a cold chisel and tin snip.
* Cold chisel – Used for cutting thick sheets of metal
* Tinsnip – Used for cutting thin sheets of metal.

2x1/2=1mk

1. Benefits of dehorning.
* To prevent injury to other animals and the farmer.
* To prevent destruction of farm structures
* For aesthetic value.
* To make the animal docile.
* For economic use of space during feeding and transportation.

4x1/2=2mks

1. Characteristics of the African wild bee.
* Well adapted to high temperature
* High flying power
* Is vicious if mishandled/ stings easily.
* Fairly resistant to diseases.
* Is more active in search of food and water and protection of the hive.
1. Factors to consider when selecting a gilt.
* Prolificacy.
* Health
* Mothering ability
* Adaptability to the prevailing environment conditions.
* Physical fitness.

4x1/2= 2mks

1. Methods of identification in livestock.
* Branding.
* Tattooing
* Ear tagging
* Ear notching.

4x1/2= 2mks)

1. Crutching- Practice of cutting wool around the external female reproductive organs in sheep.

Ringing – Practice of cutting wool around the penis sheath in sheep.

 2x1=2mks(mark as a whole)

1. Factors effecting digestibility in livestock.
* Species of the animal
* Chemical composition of the feed.
* Form in which a feed is given to an animal.
* Quantity of feed already present in the digestive system of animal.

4 x ½=2mks

1. Details contained in a pig breeding record.
* Date of service
* Expected date of farrowing or giving birth.
* Actual date of farrowing or giving birth.
* Sex of young one
* Name of the boar/ breed of the boar.

4x1/2= 2mks

**SECTION B (20MKS)**

1. a) Egg candling 1x1=1mk

b) – Hair cracks

* Blood spots.
* Infertile eggs.
* Very porous eggs.
* Double yolk.
* Broken egg shell.

2x1=2mks

 c) – Blood veins seen inside egg

 - Dark spots at the centre of eggs. 2x1=2mks

1. a) F- Mould board 1/2x1= 1/2mk

 G- Share 1/2x1= 1/2mk

b) F- Inverts the furrow slices 1x1=1mk

 G- Cuts the furrow slices horizontally. 1x1=1mk

c) – Slopy areas

* Small piece of land
* Where the land is stony / with obstacles.
* Lack of capital to buy or purchase a tractor.

2x1=2mks

1. a) – Artificial rearing / Bucket feeding. 1x1=1mk

b) – Give the right amount of milk

- Observe personal hygiene.

- Give milk at the right temperature.

- Ensure regular intervals of feeding.

- Always put milk in clean equipment.

1x1=1mk

c) – Cows can let down milk even after death of the calf.

- Many calves can be reared at a time.

- Calf can be given correct amount of milk.

- Farmers can keep accurate records of milk yields.

3x1= 3mks

1. a) Liverfluke 1x1=1mk

b) Sheep and cattle 1x1=1mk

c) – Physically killing of fresh water snails.

* Drain swapy areas.
* Avoid grazing animal’s in swampy areas.
* Apply copper sulphate in stagnant water to kill fresh water snails.
* Regular drenching using prophylactic drugs.

3x1=3mks

 **SECTION C (40 MARKS**.)

1. a) Problems affecting dairy farming in Kenya.
* Oversupply of milk during the rainy season. This reduces prices thus reducing farmers profit.
* Lack of cooling facilities; thus milk becomes bad before it reaches the market.
* Poor roads in rural areas where milk is produced making it difficult to transport milk to the market.
* Low prices offered to the farmer thus demotivating him/her.
* Milk is perishable commodity thus it loses quality fast.
* Lack of processing facilities thus they sell raw milk which fetches lower prices.
* Lack of market information about where to sell their milk.
* High cost of feed thus reducing farmer’s profit.
* High cost of artificial insemination.
* Keeping low quality breeds that are low yielding.
* Importation of milk products which compete with our milk products leading to lack of market thus demotivate farmer who then pulls out of dairy farming.
* Lack of capital to start dairy farming.
* Drought leading to food shortage. --Diseases, increase costs of production.

 6x1=6mks

b) Clean milk production.

- Ensure that milk equipment is clean.

- Ensure milk shed is clean.

- Ensure milk man/woman is clean and healthy.

- Test cows for mastitis before milking.

- Milking infected cow last and dispose off the milk.

* Avoid feeds that taint milk.
* Clean udder and flanks
* Ensure cow is healthy/ check cow for milk borne diseases.
* Filter milk to remove physical impurities after milking.
* Cool milk immediately to reduce bacterial multiplication.
* Cover milk after milking to reduce contamination.
* Store milk in a cool dry place.

5x1=5mks

c) Milk fever

i) Animals attacked.

* Cows that have recently calved.
* Goats that have recently kindled.
* Sheep that have recently lambed.

2x1=2mks

ii*)* Symptoms.

* Dullress
* Muscular twitching causing the animal to tremble.
* Staggering as the animal moves.
* Animal falls down and becomes unconscious.
* The animal lies down on its side and the whole body stiffens.
* Body functions such as urination, defecation and milk secretion stops.
* Sudden death if the animal is not treated immediately.
* Stomach contents are drawn into the mouth which later causes lung fever when breathing in.
* Complete loss of appetite that is the animal does not eat at all.

4x1=4mks

iii) Control measures and treatment.

* Treatment- The animal is given an intravenous injection of soluble calcium salt in form of calcium borogluconate to gms dissolved in 500cc of water which is boiled and then cooled.
* The sick animal should be kept in a comfortable position that is resting on its sternum. Mechanical removal of urine will also speed up recovery.
* Fresh water should be given.
* Partial milking should be done for the first few days for animals that have a history of milk fever.

3x1=3mks

1. a) Causes of egg eating in flock of layers.
* Lack of enough food.
* Calcium deficiency in the bird’s body.
* Presence of broken eggs in the poultry house.
* Idleness of hens.
* Birds laying eggs on the floor.
* Failure to collect eggs in the laying nests.
* Too bright light in the laying nests.

6x1=6mks

b) Dairy maintenance practices carried out in a farm tractor.

* Tighten loose nuts and bolts
* Check tyre pressure before work and adjust according.
* Check level of water in the radiator and top up if necessary.
* Check fan – belt tension and condition and adjust accordingly.
* Grease or oil moving parts.
* Check the level of electrolyte in the battery and adjust accordingly.
* Check the fuel tank to ensure that adequate fuel for the day’s job.
* Use a dip stick to check the level of oil in the sump and top up if necessary.

6x1=6mks

c) Uses of farm fences.

* Adds beauty to the farm.
* Marks boundaries.
* Keeps off intruders and thieves /provide security.
* Adds value to the farm.
* Prevents formation of unnecessary paths in the farm.
* Facilitates rotational grazing.
* Helps to avoid boundary disputes.
* Provides privacy to the farmer.
* Control spread of parasites and diseases by keeping off wild and stray animals from the farm.

6x1=6mks

d) For crushing and grinding food.2x1=2mks

1. a) Life cycle of one host tick.
* Eggs on the ground hatch into larvae.
* The larvae climb onto the host, suck blood become engorged and moult into adults.
* Emerging nymphs feed on the same host, become engorged and moult into adults.
* Emerging adults feed on the same animal host mat and females drop off to the ground to lay eggs.

7x1=7mks

b) i) Origin – Holland 1x1=1mk

 ii) Characteristics.

* It is black and white in colour.
* The forehead, udder and the legs below the knee are white.
* Average weight of a bull is between 900- 100kg and cows weight between 550-680kg.
* Calves are born lage with a birth weight of 35-40kg.
* Produces milk with lowest butter far content.
* Has the highest milk production.
* Heifers reach service age at 21months under good management.

4x1=4mks

c) Procedure for wool shearing in sheep.

* Restrain the sheep.
* Open up fleece at the base of the neck using a pair of wool shears.
* Clip wool around the neck through the stomach upto the udder or scrotum.
* Turn the animal over and shear the flank from the base of the neck through the left shoulder upto the position where it sits on.
* Turn over the sheep and shear the right flank. -Roll the sheep over and shear the back upto the rump.
* Shear the wool on the head and neck.
* Finally shear the wool on the hump, tail and hind legs.
* Place the fleece on a clean wool table.
* Sort and grade the wool.

 8x1=8 mks