**MECS JOINT CLUSTER EXAMINATION**

**AGRICULTURE PAPER 2 SEPTEMBER 2022**

**MARKING SCHEME**

**SECTION A (30MARKS)**

***1. State four disadvantages of natural mating (2marks)***

* *High chances of inbreeding/inbreeding not easily controlled*
* *Possible to transmit breeding diseases*
* *Males will need extra pasture to eat that would have been used by the females.*
* *Large males can injure small females.*
* *A lot of semen is wasted as a single ejaculation produces semen that can serve several cows.*
* *It is cumber some and expensive to transport a bull to hot areas to serve cows.*

***2. Give two reasons for supplementary feeding of bee (1mark)***

* *To maintain the colony*
* *To encourages multiplication*
* *To supplement what bees get from flowers*

***3. Name two other methods used to identify goats (1mark)***

* Ear tagging
* Ear notching
* tattooing

***4. List three signs of lambing (1½marks)***

* *Restlessness and bleating*
* *Distended full udder /the udder becomes full and the teats are bright red in colour*
* *Slackening of the hip muscles*

***5. Explain the meaning of cropping as used in fish production (1mark)***

* *This is the removal of fish of marketable size from the pond*

***6. State two reasons why jersey breed is suitable than Friesian in marginal areas (1mark)***

* *Has little pastures requirements*
* *An excellent grazer in poor pastures*
* *Resistant to tropical diseases*
* *Tolerant to high temperature*
* *Can walk for long distance in search of food and water.*

***7. State four methods used to control cannibalism in a flock of layers in a deep litter system (2marks)***

* *Avoid bright light in the house*
* *Avoid overcrowding by giving enough space to the birds*
* *provide birds with a well balanced feeds*
* *Keep birds according to age group*
* *Control external parasites*
* *Debeak hens which peck at others*
* *Cull perpetual cannibals*
* *Keep birds busy by hanging green leaves or vegetables in the house*

***8. State two reason why we have a footbath in a cattle dip (1mark)***

* To clean/wash the feet of animals
* To control foot rot

***9. State four uses of solar energy in the farm (2marks)***

* Drying farm produce
* Heating water
* Cooking
* Distillation of clean drinking water
* Generating electricity

***10. List four functions of water in an animal’s body. (2marks)***

* Components of body cells and many body fluids
* Transportation of nutrient from one part of the body to another
* Makes cells turgid maintaining the shape of the body cells
* Used in the biochemical reactions in the body
* Regulate body temperature.
* Excretion of waste products from the body
* Forms parts of the animal products

***11. State four reasons for controlling livestock diseases (2marks)***

* Reduce spread of livestock diseases
* Improves the quality of products
* Promote faster growth and early maturity
* Gives maximum production or performance

***12. State one importance of guard rails in a farrowing pen (1mark)***

* Prevent sow from crushing piglets
* Prevents sow from eating creep feed

***13. List two groups of vitamins used in livestock feeding (1mark)***

* Fat soluble vitamins
* Water soluble vitamins

***14. State the functions of the following farm tools***

 ***i) Shovel (½mark)***

* Used for lifting soil and manure

 ***ii) Rubber ring and elastrator (½mark)***

* Used for castrating, docking or dehorning young animals.

***15. List three control measures for the fowl pox dieses in poultry (1½marks)***

* Vaccination of healthy birds
* All affected birds should be removed and killed.
* Observing hygiene in poultry.

***16. What is a production ration? (2marks***)

* This is the daily amount of food given to an animal over and above the maintenance requirement for the purpose of production.

***17. State two maintenance practices carried out on a slasher (1mark)***

* Repair of broken handle
* Sharpening of the blunt cutting edge
* Oiling metallic part to prevent rusting
* Clean after use

***18. Name the hormone responsible for milk let down (½mark)***

* oxytocin

***19. List any two chemicals used to treat wood against weather elements (1mark)***

* Creosote.
* Tar.
* Tanex.

***20. State any four characteristics of exotic breeds of cattle (2marks)***

* Have no humps.
* Have low tolerance to high temperatures.
* Have fast growth rates leading to early maturity.
* Cannot walk for long distances.

***21. State three uses of biogas on a farm (1½marks)***

* For lighting.
* For cooking.
* Used in internal combustion engines.

***22. State four practices done to make wooden fence posts last longer (2marks)***

* Proper drying.
* Chemical treatment.
* Reinforcing with concrete.
* Slightly burning of the posts.

**SECTION B (20MARKS)**

 23. A dairy farmer is required to prepare 100kg of dairy meal containing 20% D.C.P (Digestible crude protein) using the person’s square method, calculate the quantity of soya beans 40% DCP and rice 16% DCP the farmer requires for the dairy meal (5marks)

Soya beans 40% DCP 4 parts of soya beans

20%DCP

Rice 16% DCP 20 parts of rice

 24 Total Parts

 Soya beans 4/24x100 = 16.67 kgs/ 16.7kgs

 Rice 20/24x100= 83.33kgs/83.3kgs

***24. The following diagrams illustrates some farm tools study them carefully and answer the questions that follow***

***a) Identify the tools labeled E and F (2marks)***

* E - Adjustable spanner
* F -Ring spanner

***b) State the functional advantage tool E has over tool F (1mark)***

* Tool E can be adjusted to loosen or tighten bolts and nuts of different sizes while tool F can only be used to loosen or tighten bolts and nuts of a specific size.

***c) State two maintenance practice carried out on tool E (2marks)***

* Clean after use
* Adjust the jaws to lock after use

***25. a) Study the diagram below of an egg shell and use it to answer the questions that follow (2marks)***

* B – Inner shell membrane
* C – Outer shell membrane
* D – Albumen (egg white)
* F - Chalaza

 ***(b) List any two structural qualities of an egg to be incubated (2marks)***

* Should be fertilized
* Should be medium sized
* Should have smooth shells
* Should be oval in shape
* Should be free of any cracks in the shell
* Should not have any abnormalities such as blood spots.

 ***(c) Give the functions of part labeled E in a fertilized egg (1mark)***

* Providing food for developing embryo

***26. The diagram below shows the pats of the digestive system of cattle. Study it and answer the questions that follow***

***a) Name the parts labeled P, T, S and Q (2marks)***

* P – Rumen
* T – Abomasum
* S – Small intestine
* Q – Colon

***(b) List three microbial activities that take place in the part labeled P (3marks)***

* Fermentation of food
* Synthesis of Vitamin B complex and vitamin K
* Synthesis of amino acids from ammonia gas
* Breakdown of proteins to peptides, amino acids and ammonia.
* Breakdown of carbohydrates and cellulose to carbon (iv) oxide and volatile fatty acids.

**SECTION C (40 MARKS)**

**ATTEMPT ANY TWO QUESTIONS IN THIS SECTION**

***27. (a) Discuss the preparation of the brooder before the arrival of chicks (5marks)***

* Brooder should be made ready 2 to 3 days before chicks arrive.
* Ensure all the equipment are functional.
* Spread newspapers on the floor of the brooder.
* Spread some feed on the newspaper and some on the feeders.
* Clean and disinfect the brooder house and the brooder equipment.

***(b) Describe the management practices carried out on ewes 2 weeks before mating to weaning of lambs(15marks)***

* Flushing 2 to 3 weeks before tupping and continues for 3 weeks after tupping.
* Crutching to facilitate mating/tupping.
* Hoof trimming to cut the over grown hooves to facilitate easy movement.
* Shearing of wool from all over the body of the ewe.
* Feed the ewes on clean pastures
* Deworm the ewes 2-3 week before lambing
* Provide clean drinking water.
* Provide clean and enough shelter
* Separation of the ewes from the others after showing signs of lambing.
* Move the ewes into their individual clean pens to lamb down under supervision
* Steaming up done during the last weeks of gestation.
* Observing signs of lambing and assist where necessary.
* Ensure the mother licks the lamb to ensure that the coat is dry.
* Ensure that the lambs suckle the colostrum.
* Rejected &orphaned lambs should be given to a foster mother or fed artificially.
* Keep lambs and ewes under good and clean pastures.
* Docking of the lambs should be done within 2 weeks of lambing.
* Castration of male lambs that are not selected for breeding should be done when 2 weeks old.
* Introducing creep feeding to lambs at the 6th week
* Spray/dust to control ectoparasites
* Deworm the lambs.  **(ANY 15 POINTS)**

***28. (a) Outline any eight control measures for ticks (8marks)***

* By use of the ticks natural enemies/predators
* Self licking by the animal dislodges the ticks from the body
* Licking by other animals
* Burning the infested pastures
* Interfering with or altering the tick’s environment through ploughing the pasture land or top dressing the pasture using lime.
* Fencing off the pasture land and farm
* Starving the ticks to death by carrying out rotational grazing of the use of paddocking system.
* Handpicking the ticks from livestock and killing them/de-ticking.
* Use of acaricide/chemical control.

***(b) Outline the daily maintenance practices that should be carried out on a farm tractor. (12marks)***

* Engine oil should be checked daily by use of a dip stick and added if the level is low.
* Fuel level should be checked at the start of everyday’s work and added if necessary.
* Water level in the radiator should be inspected and if necessary topped up.
* The level of electrolyte should be checked daily and topped up with distilled water.
* Tightening loose nuts and bolts.
* Replacing lost nuts and bolts before day’s work.
* Grease should be applied by use of grease gun through the nipples.
* Large sediments from the sediment bowl should be removed.
* The tyre pressure should be checked every morning before the day’s work by use of pressure gauge.
* The fan belt tension should be checked to ensure that it reflects between 1.9 cm to 2.5 cm when pushed.
* The brake shaft bearing should be greased.

  **( ANY 12 POINTS)**

***29. (a) Describe the uses of five materials and equipment required during hand milking (10marks)***

* Udder clothes/towels – Provide two towels per cow one for washing and the other one for drying the udder.
* Filtering pads – Used for straining milk
* Milking jelly – Smeared on teats after milking to prevent them from cracking.
* Warm water – For washing the udder before milking in order to remove dirt. It also stimulates the milk let down.
* Milking Pails / buckets – Used for holding milk during milking
* Strip cup – Used for checking whether the animal suffer from mastitis.
* Milk cans/churns – Used to hold milk during storage and transportation
* Milking stool – Milk man sits on it during milking.
* Weighing scale – Used to weigh the amount of milk per animal
* Refrigerator & charcoal coolers – To keep the milk under very low temperatures to prevent it from going bad before being transported to the factory.

 ***(ANY FIVE MATERIALS & USE(S) WELL STATED)***

***30. Discuss mastitis disease under the following sub headings.***

***(a)Animals affected (1 mark)***

* All animals with a mammary gland – cattle, sheep, goats, pigs, camels and horses.

***(b) Casual organism (1mark)***

* Bacteria.

***(c ) Predisposing factors (4marks)***

* Age – older animals are more likely to be infected as compared to younger ones.
* Stage of lactation period – Animals are more likely to suffer from mastitis at the beginning and at the end of the lactation.
* Udder attachment – Animals with large loosely hanging udders are more susceptible to mastitis infection
* Incomplete milking – When milk is left in the teat canal, it acts as a culture media for bacteria
* Mechanical injuries – wounds on the teats or udder allow micro-organism entry into udder.
* Poor sanitation – This increases the multiplication of the bacteria causing mastitis.
* Poor milking technique – This may result in mechanical injury of the teats and weakening of sphincter muscles of the teat.

 ***(ANY 4 FACTORS WELL EXPLAINED)***

***(d) Control and treatment (4marks)***

* Open wounds on the teats should be treated immediately
* Sharp objects should be removed from grazing and milking areas to prevent injuries.
* Disinfect the udder clothes after milking each anima
* Use of a strip cup to detect mastitis infected cow.
* Should be milked last and the milk disposed off.
* Dry cow therapy/ infusion of long acting antibiotics into the flat canal when drying off the cow.
* Strict cleanliness and use of disinfectants during milking.
* Using the right milking technique
* Use of a teat dip on every quarter after every milking.
* The affected quarter of the udder is emptied of milk and an antibiotic is instilled and left for

 **(ANY FOUR CONTROL MEASURES)**