

Kenya Certificate of Secondary Education

AGRICULTURE PAPER 443/2

SECTION A (30 MARKS)

1. State two practices that should be carried out on ewes in preparation for mating. (1mark)
 - Crutching
 - Flushing
 - Shearing
 - Docking
 - Deworming
 - wiggling
2. Give two cultural uses of livestock (1mark)
 - Used as a medium of exchange
 - Status symbol
 - Recreational purposes
 - Social ceremonies
3. Give two uses of the land wheel in an ox-drawn plough (1mark)
 - adjusts the ploughing depth
 - controls ploughing direction
 - eases movement of the plough by rotating
4. Give two reasons for candling incubated eggs. (1mark)
 - To check for fertility of eggs
 - To confirm the presence of the chick
5. (a) What is the purpose of a sieve placed at the mouth of the inlet in a fishpond (1mark)
 - To prevent foreign fish and predators from entering into the fish pond

(b) Name the structure that allows passage of human beings across a fence but prevents livestock (1mark)

 - Y- pass/men pass or gate
6. State two methods of identifying poor layers in a flock. (1mark)
 - Using a trap nest
 - Physical examination of the birds
7. State two conditions under which a farmer can only use ox-drawn implements and not tractor drawn implements (1mark)
 - Where the land is very small
 - Sloppy area
 - Inadequate capital
8. State two roles of piston rings in an engine. (1mark)
 - Prevent fuel leakage during compression

- Prevent power loss during ignition
- 9. State two functions of a piglet creep area in a farrowing pen (1mark)
 - Protects piglets from being crushed by the sow
 - Ensures the sow does not access the creep feed meant for piglets
- 10. Name two cattle diseases whose outbreak calls for quarantine (1mark)
 - Anthrax, rinderpest, lumpy skin disease, rabies, foot and mouth disease
- 11. State the appropriate use of each of the following tools and equipment (1 ½ marks)
 - (a) Center punch – for marking the points for drilling in metals
 - (b) Stirrup pump – for spraying acaricides on the body of livestock
 - (c) Elastrator - for expanding the rubber ring during a practice like castration
- 12. (a) Give two roles of litter in a deep litter poultry house. (1mark)
 - Absorbs moisture/keeps the house dry
 - Keeps the house floor warm
- (b) What is the use of a footbath in a poultry house (1mark)
 - Prevents introduction of pathogens into the poultry house
- 13. (a) Give three reasons for docking in sheep management. (1 ½ marks)
 - To control egg eating
 - Controls cannibalism
 - Controls feather plucking
 - Controls toe pecking
- (b) State the most appropriate method of castration in pigs. (1mark)
 - Open /severe method
- 14. Name two exotic dairy breeds of goats. (1mark)
 - Saanen
 - Toggenburg
 - Alpines
- 15. Give four components of a water cooling system in an engine. (2marks)
 - Radiator
 - Water pump
 - The fan
 - The thermostat
 - The temperature gauge
- 16. Give three qualities that make colostrum suitable for feeding a young calf (1 ½ marks)
 - It is highly digestible hence suitable for calves whose digestive system is not developed.
 - Highly nutritious. It contains vitamins and proteins for growth and disease resistance
 - It is rich in antibodies to enable the calves resist early disease infection
 - It has a laxative effect and helps to clean the bowels/removal of first dung.

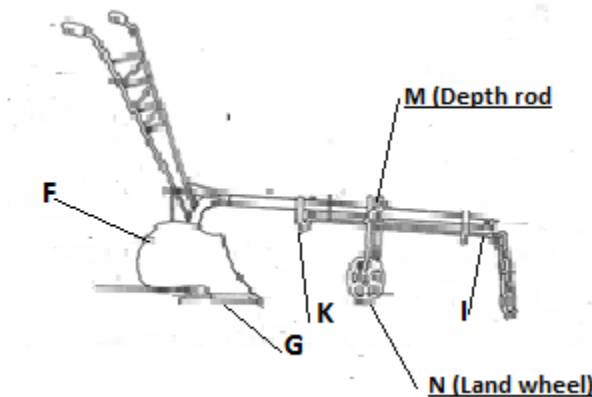
- It is highly palatable
17. State three uses of a rotavator. (1 ½ marks)
- Breaks up soil clods/harrowing
 - Mixes trash and soil
 - Primary tillage/cuts furrow slices
18. Name the livestock diseases caused by the following micro-organisms. (3marks)
- (a) *Clostridium chauvei* – Black quarter
 - (b) Irido virus – African swine fever
 - (c) *Salmonella gallinarum* – Fowl typhoid
19. (a) What does the term 'digestibility of feed' mean? (1mark)
- The portion of food retained in the animal's body after taking care of losses through urine, gases and faeces
- (b) State four factors that affect digestibility of a feed. (2marks)
- Fibre content of the feed
 - Form in which feed is given
 - Species of the animal
 - Amount of already in the digestive system
 - Ratio of energy to proteins in the feed
20. State two types of concentrates in livestock nutrition. (1mark)
- Energy concentrates
 - Protein concentrates
- 21.
- (a) Name the main raw material used in biogas production (1mark)
 - Animal wastes.
 - (b) Name the parts labeled (4marks)
 - K – Gas holder
 - L - Pipeline to kitchen
 - M - Brick wall
 - N - Outlet pipe
 - O - Slurry channel
 - P - Partition wall
 - Q - Inlet pipe
 - R - Mixing chamber
 - (c) State two uses of biogas in the farm (1mark)
 - Heating and cooking
 - Lighting
 - Run refrigerators

- To power/run stationery machines

(d) State two limitations of using biogas as a source of farm power (1mark)

- Require high level of skill to install
- Appropriate where animals are reared under zero grazing
- Lab our intensive
- Requires large amount of raw materials
- High installation costs
- Limited to few farm operations

22.



(i) Give the functions of the parts G and F (2marks)

G – Horizontal cutting of the furrow slices

F – Inverts the cut furrow slices

(ii) Name the parts labeled K and I (1mark)

K - is U- bolt

I – is the draft rod

(iii) Mark on the diagram using letters M and N the two parts used to adjust the depth of ploughing. (1mark)

23.

(a) Name the parts labeled P and Q (1mark)

P- Air space

Q - Challazae

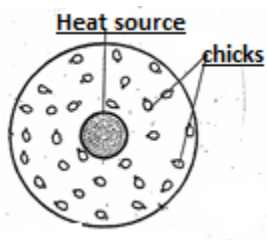
(b) Give two defects that may be found on part M that make the egg unsuitable for incubation (1mark)

- Presence of cracks

- Rough egg shell
- Dirty on the egg shell
- (c) State one role of the part labeled R (1mark)
- Stores food for development of the chick
- Carries the germinal disc, which develops into the embryo upon fertilization
- (d) State how the egg is packed in a tray (1mark)
- The egg is packed with the broad end facing upwards.

24.

- (a) Explain the behavior of the chicks in each case (3marks)
- A – It is very cold in the brooder that is why the chicks overcrowd around the source of heat to get warmed
 - B – There is draught from the side directly opposite where chicks have crowded
 - C – There is too much heat in the brooder causing the chicks to move away from the source of heat
- (b) Draw a diagram to show the behavior of the chicks if the temperature in the brooder is the correct one (1mark)



- (c) Explain why the brooder guard is rounded (1mark)
- The brooder guard is rounded to avoid overcrowding at one point which may lead to suffocation.
25. (a) Explain the factors that influence the work output of a draught animal (10marks)
- Age of the animal- young animal have low work output than mature animals
 - Size of the animal – bigger animals have higher power output
 - Level of training – well-trained animals are more efficient than poorly trained ones. They are able to follow instructions
 - Method of harnessing – Well – harnessed animals are more comfortable at work hence more efficient than poorly harnessed animals
 - Body condition - A well fed draught animal is strong and healthy hence has higher work output one that is poorly fed
 - Weather conditions – Adverse temperature reduces the work output of draught animals. Animal work well under suitable weather conditions

- Duration/ hours of work – overworked animals tend to have low work output, draught animals should be given sufficient time to rest
- Condition of the working implements – Well maintained implements are easy to work with and this improves the work output of the animal

(b) Describe artificial brooding of layer chicks from day old up to eight weeks. (10marks)

- Construct the brooder 2 – 3 days before the arrival of chicks.
- Clean and disinfect the brooder.
- Place litter on the floor 10cm deep. preferably saw dust
- Spread newspapers on the litter to prevent the chicks from eating litter
- Clean and disinfect the equipment and test them to ensure they are working
- Lit the brooder 6 hours before the arrival of chicks
- Put feed and water in the containers
- Confine the brooder space to prevent the chicks straying from the source of heat
- Placethe chicks in the brooder during the day to familiarize with the brooder
- If they are stressed and weak on arrival, they should be given glucose in water
- If source of heat is charcoal burners, they should be guarded with wire mesh.
- Feed the chicks on chick mash for fast growth, which is later mixed with growers mash.
- Provide clean water regularly
- Given the chicks constant attention in the first 2 weeks
- Remove the dead chicks from the brooder
- Vaccinate the chicks against Gambaro at 2 weeks, Newcastle at 4 weeks and fowl typhoid at 7 weeks of age
- Dust the chicks against external parasites
- Provide coccidiostats in water to control coccidiosis.
- Provide adequate water and feed troughs
- Isolate and treat the sick chicks immediately
- Keep proper records
- Provide roosts for chicks to perch on the 6th week
- Introduce growers mash mixed with chick mash on the 7th week
- De-break the chicks 10 days before and after brooding
- Remove chicks from the brooder to the main house on 8wk
- Provide litter 30cm deep on the floor to maintain warmth
- Maintain the correct temperature in the brooder according to age
- Maintain proper ventilation by adjusting the openings
- Provide appropriate light (dim light)

26. (a) Describe the prerequisites of clean milk production

(10marks)

- **Health milking stock** - Ensure the cows are healthy and tested annually for milk borne diseases. Those that are infected are removed from the herd and treated. Test for mastitis before each milking
- **Clean milking cows** - Ensure that the flanks, the underline and the udder are washed before each milking and clip off long hair on the flanks and the udder to avoid milk contamination
- **Clean milkman** - The milkman should be clean, keep the finger nails and hair short / hair covered and wear white overall when milking and handling milk
- **Health milkman** - a milkman with contagious diseases should not milk or handle milk
- **Clean milking shed/parlor** - should be cleaned after each milking and kept free of dust and bad smell. White washed wall.
- **Clean milking utensils** - the utensils should be washed with hot water and detergent and rinsed with clean water after each milking
- **Filtration and cooling** - Filter and cool milk down immediately after milking to slow down bacteria multiplication.
- **Proper handling** of milk after milking. Store milk in cool, dry and dust free room
- Deliver milk to consumers immediately after milking
- **Avoid bad-flavour** - do not feed cow of feeds like Mexican marigold before milking. (Given after milking). Avoid oxidation/exposing to the sun for long. Use utensils that are free of iron and copper- traces on the surface.

(b) Describe the factors that influence milk composition in a dairy cow (10marks)

- **The age of the animal** - Young animals produce milk with high BFC than older animals - Butter fat content decline with age
- **Physiological condition of the animal** such as emaciation, pregnancy and sickness e.g. the butter fat content is low at late stages of pregnancy
- **Stage of lactation and pregnancy** - BFC is higher at middle stage of lactation period, while minerals and proteins are high at 2nd stage of lactation period.
- **Completeness of milking** - last drawn milk contains 10% of the total fat % in milk
- **Time of milking** - milk produced in the morning has low fats than that in the evening
- **Breed of the animal** - different breeds produce milk with different composition % e.g. BFC
- **Season of the year** - fats % increase during the cold season as the other constituents decrease - lactose and protein
- **Type of feed eaten/nutritional level** - animals fed on roughages produce milk rich in lactose, fat and proteins than those fed on grains
- **Diseases/health of the animal e.g.** - mastitis reduce lactose in milk as the bacteria attack sugars and animal under treatment of different drugs produce milk with variable composition.

27. Describe foot rot disease in sheep under the following sub-headings

- (i) Causal organism (1mark)
- Bacterium of *fusiformis*, *fusiformis necrophorus*, *fusiformis nodosus* or *spirochaeta penortha*

(ii) Predisposing factors (3marks)

- Wet or muddy conditions/ground
- Injuries or wounds on hooves
- Overgrown hooves./untrimmed hooves that leads to cracking of hooves
- Presence of sharp objects on grazing fields

(iii) Symptoms of attack (6marks)

- Lameness / inability to walk under acute attack
- Swelling of affected feet
- Wounds and ulcers/pus/
- Foul smell and pus from the affected hoof
- Anorexia/loss of appetite
- Sheep graze on their knees when the front legs are affected
- Loss of weight/emaciation

(iv) Control measures (5marks)

- Regularly hoof trimming
- Keep grazing land free from sharp objects.
- Avoid grazing animals on wet, damp/ muddy areas
- Make animals walk in a foot bath of 3% formalin or 5% copper sulphate solution.
- Isolate sick ones from healthy ones
- Clean the affected foot with antiseptic and apply protective dressing

(b) Explain the importance of keeping livestock health (5marks)

- Healthy animals are economical to keep i.e. the farmers save on drugs and veterinary bills
- Healthy animals do not spread zoonotic diseases to human beings and other livestock
- Healthy animals breed regularly
- Healthy animals are more productive/ give high yields
- Healthy animals produce good quality products that fetch good market prices
- Healthy animals grow faster and mature early
- Healthy animals have longer productive life
- They give rise to strong, vigorous and healthy off-springs which are cheap to raise
- Healthy animals are attractive and have high market value