

**MERU CENTRAL CLUSTER EXAMINATION
(2020)**

Kenya certificate of secondary education (k.c.s.e)

443/2

AGRICULTURE

PAPER 2

MARKING SCHEME

SECTION A (20 MKS)

1. -Saanen
 - Anglo-Nubian
 - Toggenberg
2. To increase durability
 - To reduce the replacement cost
 - To increase efficiency
 - To avoid injury to the user
 - To avoid damage to the tool
3. Overgrow hooves
 - Wet/muddy conditions
 - Physical injuries of the foot
4. Milk quickly and evenly
 - Milk at regular times
 - Avoid use of wet hands
 - Complete milking
5. To feed the queen, drones and brood
 - To collect nectar, pollen, gum and
 - To clean hive
 - To make honey and bee wax
 - To build combs
 - To seal cracks and crevices in hives within wax and propolis
 - To guard the hive
6. Kidding down - kids
 - Farrowing down - piglets
7. Are vectors of diseases e.g. East Coast Fever (ECF)
 - Suck blood from the host animal causing anaemia

- Their bites cause wounds which act as routes for secondary infections
- Cause irritation through their bites
- Cause damage to the skin lowering the value of hide and skins
- Some produce toxins that cause effects on the host

8. reliable source of water

- soil type i.e. clay/non –porous
- topography i.e. gently sloping area
- nature of land, avoid where big cracks appear

9. Appropriate tools for

a) removing metal chippings in the files

-wire brush (1x1) (1mrk)

b) Cutting wood along grains

-rip saw 1x1(1mrk)

c) Branding

- Branding iron 1x1=1mrk

10. Characteristic of boran cattle

- Compact, deep and wide body
- Long, wide, drooping rump
- Large hump and dewlap
- Usually white in colour hence radiates heats
- Slow growth rate and late maturity
- Resistant to high temperature

-Cows weigh 410-450kg, bulls 550-650 kg (4x1/2 =2mrks

-Used to improve zebu

11. Method of out breeding

-Out crossing

-Cross breeding

- Grading up /Up grading 3x1/2=1 ½ mrK

12a) Caponisation -sterilizing male bird

b)bullock –mature castrated male cattle

c)Episylasis-a combination of inferior gene which individually could express themselves

13. Control of liver fluke.

-Use of molluscides to kill snails in stagnant water

-Burning of affected pastures.

-Keeping animals away from marshy areas by fencing them out.

-Killing water snails physically.

-Drenching affected animals with suitable deworming drugs.

-Draining swampy areas.

14.”dry cow therapy”-it’s the practice of infusing antibiotics into the udder to control of mastitis when a cow is undergoing drying off.

15. Causes of stress in poetry.

-Sudden change in weather conditions.

- Drastic change in routine practices
- Introducing new birds in old flock.
- Sudden occurrence of loud noises e.g. thunderstorm.
- Too many strangers in poultry house.
- Poor feeding practices e.g. sudden change of one feed to another.
- Attack by parasites
- Inadequate feed and water.

16. Mothering ability. –refers to that ability of the dam(mother) to take care of the offspring until weaning whereas **prolificacy** is the ability of the female animal to give birth to many offspring at the same time.

17 . Sources of protein in livestock.

- Seed cakes e.g. cotton seed cake
- Animal products e.g. fish meal.
- Leguminous foliage e.g. Alfalfa
- Young green grass.

18. Signs of parturition in a cow.

- Restlessness
- Protruding pin bones
- Slackening of the pelvic girdle
- Swollen vulva
- Thick mucus-like discharge from vulva.

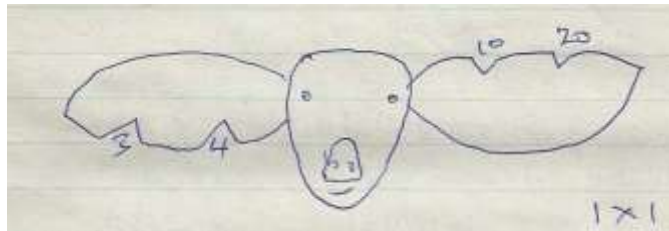
- Lack of appetite
- Isolating from others.

SECTION B (20 MKS)

19 a) practice illustrated

-Ear notching 1x1=1mrk

b)Illustration for number 37



c) Other method of identifying piglet

- Ear tagging
- Ear tattooing

2x1=(2mrks)

20.a)

- A Open-end spanner
- B Rig spanner
- C Adjustable spanner
- W Burdizzo

b) Functional deference

K- Expands rubber ring to facilitate to facilitate closed castration, docking and dehorning

W- used for closed castration in bull calves, rams and Billy goats

c).Advantage of tool C, over tool A and B

- Toll C, can be used to open and tighten nuts and bolts of deferent sizes while A and B can only be used to open or tighten nuts and bolts of specific sizes.

d) Common maintenance of tool C and W

-Tightening the screw when loose

21.a)

w- Lobe

X- Gland cistern

Y- Annular ring

Z- Teat orifice

b)

-Milk let down is flow of milk from the upper region of the udder to the lower part.

c)

-Oxytocin

-Adrenaline

22. Method of extracting honey

a) heat method

b) Why x should not be heated directly

-To prevent destroying honey by heat 1x1=(1mrk)

c) Parts

W-Honey combs

Y-water 2x1=(2mrks)

d) Other method of honey extraction

-Crushing and straining

-Centrifugal method 1x1=1mrk

1x1=(1mrk)

SECTION C (40 MKS)

23a) Reasons why bees swarm

-Presence of infertile or dead queen

-Damage to the brood

-Absence of food and water

-Disease and pest outbreak

-Congestion in the hive

-Unfavorable weather

b) Maintenance of tractor battery

-Check n the electrolyte level and top-up if necessary with distilled water

-Ensure battery is tightly fixed to reduce vibrations

- Scrub corroded terminals and apply some petroleum jelly
- During long storage, empty the battery and place it upside down
- Generator belt tension should always be maintained for continuous charging of the battery
- Ensure that the terminals are properly and tightly fitted to the tractor.

c) Poor health

- old age
- physical deformities
- infertility
- hereditary defects
- poor mothering ability
- poor quality producers
- low production
- bad temperature

d) Methods of tick control

- Ploughing pasture land to expose adult ticks and other stages of development to the destructive effects of sun heat or bury them deeply.
- strong fencing to keep off stray wild animals that may transmit ticks to frocks
- Rotational grazing so that animals are kept away from tick infested areas resulting in starvation of the ticks and interruption of their life cycle.
- Deticking,-physical removal and destruction of ticks using hands.
- Burning of infested pastures thus destroying the eggs, larvae, nymphs and adults.

24a) The formation of an egg in a chicken takes between 24 and 26 hours. The formation of the egg begins at the ovary where each ovum is held firmly by a protective device called a follicle.

- The mature ovum (yolk) is released from the **ovary** through the rupturing of the follicle. The egg moves down to the oviduct where it is received by the funnel.
- At the **funnel** also called the infundibulum, fertilization takes place as it moves through the funnel.
- Chalaza are added to hold the yolk and egg stays at this point for a quarter of an hour.
- **Magnum**: From the funnel the ovum moves down to the magnum where thick albumen is added and the egg stays here for 3 hours then moves down to the isthmus.
- Isthmus: this is about 10.6cm long and the yolk is added shell membranes are added. The shape of the egg is also determined here (isthmus). Water, mineral salts and vitamins are also added. Egg stays for an hour then moves to the uterus.
- Uterus (Shell gland), this is the area with high calcium deposits. The shell is added to the egg and the albumen is completed here. Shell pigment is also added and the egg stays here for 18 – 22 hours then moves down to the vagina.
- Vagina; this about 6.5 cm long and the egg is temporarily stored before it is laid, then it finally moves to the cloaca, where the egg moves through to the vent. The cloaca extends out to deposit the egg and this stops it from breaking.

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b) Four stroke cycle Engine

- Produces high power and can do heavy farm work
- Have efficient fuel and oil utilization.
- they perform a wide range of farm operations.
- Engines are efficiently cooled with water, hence engines are large.
- Exhaust gases are effectively expelled from cylinders.
- their use is limited in areas.

Two stroke cycle engine

- Produces less power and cannot be used for heavy duties in the farm
- inefficient in burning fuel to produce power. used for specific operations in the farm
- they air cooled engines thus limiting the size of engines.
- Gases not effectively expelled.
- They can be used in wide range of farm land including hilly areas.

c) This is the first stomach compartment

- Food is temporarily stored in the rumen before regurgitation to the mouth for further chewing
- In this chamber, the food is acted upon by micro- organism
- During temporary storage, the food is fermented a condition necessary for microbial digestion.
- There is synthesis of vitamin **B** complex ie VitB1, Vit B2, Vit B6 and Vit K.
- Synthesis of amino acids from ammonia gas
- Breakdown of carbohydrates and cellulose to carbon dioxide and volatile fatty acids ie acetic , butyric propionic and formic acids.
- Ammonia gas and volatile fatty acids are absorbed through the walls of rumen. Gases ie methane, hydrogen and carbon dioxide are released through belching.

25a) i) Typanosoma (spp)

ii) cattle

- Sheep
- Goats
- Pigs
- Horses

iii) high temperature or fever

- The animal is observed to be dull
- Loss of appetite
- General weakness of the body
- Lachrimation which leads to blindness
- Diarrhea
- Rough coat sometimes no hair and cracked skin
- Swelling of parts of the belly
- Milk production decreases

- Loss of hair at tail and
- Anemia
- Abortion may occur in pregnant females due to high body
- b) -Control external parasites
 - keep birds busy by hanging green leaves or vegetables in the house
 - feed the birds on a balanced diet
 - provide adequate floor space
 - provide adequate laying nests
 - provide dim lights in the brooden
 - keep birds as per age group
 - debeak hens which peck others
- c) Five parts of a piggery unit
 - -Farrowing pen; to ensure safe farrowing and safety of piglet; hence should be provided with farrowing crates and heat source;
 - -Gilt pen; for keeping young female up to service age
 - -Boars pen; for breeding boar should be spacious for exercise
 - -Weaners pen; to house piglet after weaning
 - -In pig pen; for pregnant sow awaiting farrowing
 - -Running yard; for sunbathing and dunging
 - -Feed store for storing pig feed
 - -Water tough; for watering pigs
 - -Record room; for keeping feed and weight records
 - -Roofing; for their protection against extreme weather conditions.
 - - Feed troughs; for feeding pigs.
 - (5 mks)