NAME _____INDEX NO._____

SIGNATURE_____ DATE _____

443/2
AGRICULTURE
PAPER 2
JULY/AUGUST 2023
TIME: 2HRS

KIRINYAGA CENTRAL SUB-COUNTY
EFFECTIVE 40 JOINT EXAMINATION - 2023
KENYA CERTIFICATE OF SECONDARY EDUCATION (KCSE)

INSTRUCTION TO CANDIDATES

(a) Write your name and index number in the spaces provided above
(b) Sign and write the date of examination
© This paper consists of THREE sections A, B and C
(d) Answer all questions in section A and B and any two questions in section C
(e) All answers must be written in English
(f) Answers should be written in the spaces provided no additional papers
(g) This paper consists of 8 printed pages
(h) Candidates should check the question paper to
ascertain that all pages are printed as indicated and
that no questions are missing

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAXIMUM SCORES	CANDIDATE SCORE
A	1-19	30	
B	20-23	20	
C	24-26	40	
TOTAL SCORE		90	

SECTION A 30 MKS (Answer all questions in this section)

1. Name **four** dual purpose breeds of cattle (2mks)

(I).....

(ii).....

(iii).....

(iv).....

2. Name **four** mechanical methods of controlling tick (2mks)

i).....

(ii).....

(iii).....

(iv).....

3. Name **four** diseases (dis-orders) resulting from mineral imbalances in livestock (2mks)

(i).....

(ii).....

(iii).....

(iv).....

4. State **three** methods of selection in livestock breeding ($1\ ^1/_2$ mks)

(i).....

(ii).....

(iii).....

5. Name **two** breeds of pigs kept for production of pork (1mk)

(i).....

(ii).....

6. State **four** ways of administering vaccines to livestock (2mks)

(i).....

(ii).....

(iii).....

(iv).....

7. Mention **four** reasons for treating timber before roofing farm buildings (2mks)

(I).....

(ii).....

(iii).....

(iv).....

8. Name **two** diseases in cattle controlled by the same vaccine (1mk)

(ii).....

(ii).....

9. Name the hormones responsible for the following

(i)Initiating Lactogenesis ($1^1/_2$mks)

.....

.....

(ii) Milk let down

.....

.....

(iii) Hindrance of milk let down

.....

.....

10. Give **four** conditions that reduce the quality of eggs for incubation (2mks)

(I).....

(ii).....

(iii).....

(iv).....

11. Give **two** advantages of two stroke cycle engine of a tractor (1mk)

(i).....

(ii).....

12. Under what **two** conditions would a farmer prefer to use a cart than a trailer (1mk)

(I).....

(ii).....

13. State **four** cultural uses of livestock (2mks)

(I).....

(ii).....

(iii).....

(iv).....

14. Name **two** larval develoomental stages of liverfluke that occur outside the intermediate host (1mk)

I).....

(ii).....

15. State **two** advantages of using stones as building materials (1mk)

(i).....

.....

16. State **four** reasons for breeding (2mks)

(i).....

(ii).....

(ii).....

(iv).....

17. Why are eggs packed in trays with their broad end facing upwards (1mk)

.....

.....

.....

.....

18. List **four** tools used laying concrete blocks when constructing a wall (2mks)

(i).....

(ii).....

(ii).....

(iv).....

19. State **four** factors that influence the amount of feed in animal consumes (2mks)

I).....

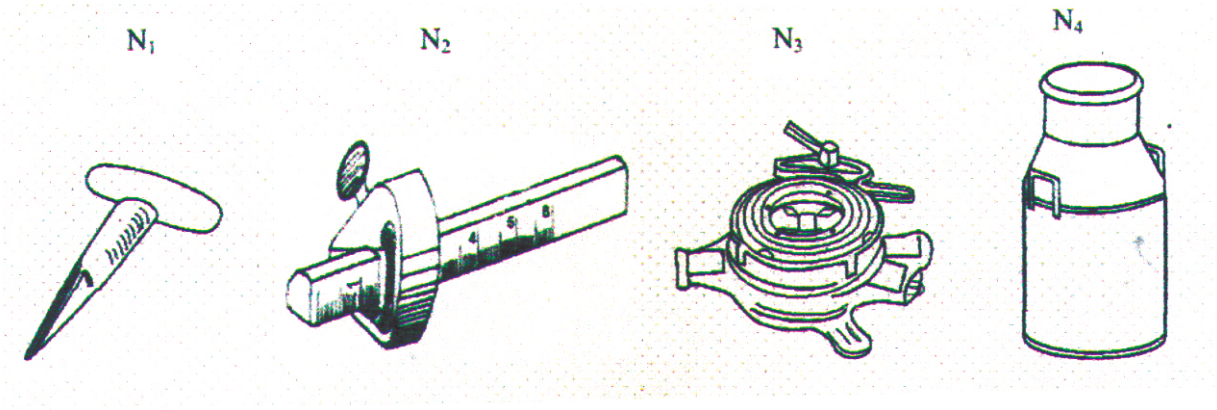
(ii).....

(ii).....

(iv).....

SECTION B (20Mks) Answer all Questions in this section)

20. The diagrams below illustrate farm tools and equipment . Study them and answer the questions that follows.



(a) Identify the tools and equipment labelled above (2mks)

N1.....

N2.....

N3.....

N4.....

b) Classify the above shown tools and equipment under (2mks)

(i) Garden tools an equipment

(ii) Workshop tools equipment

(iii) Plumbing tools and equipment

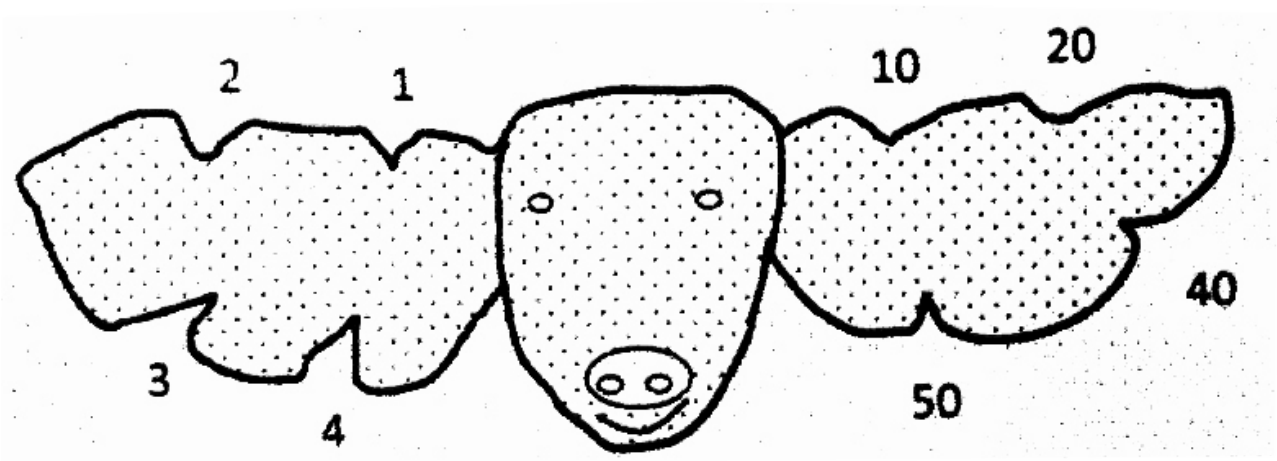
(iv) Livestock production tools and equipment

(c) State the function of the tool labelled H_2 (1mk)

.....

.....

21. The diagram below shows a certain practice carried out on cattle



(a) Identify the practice illustrated above (1mk)

.....

(b) Draw another illustration depicting cattle number 37 (1mK)

.....

(c) Name the tool used to carry out the practice illustrated above (1mk)

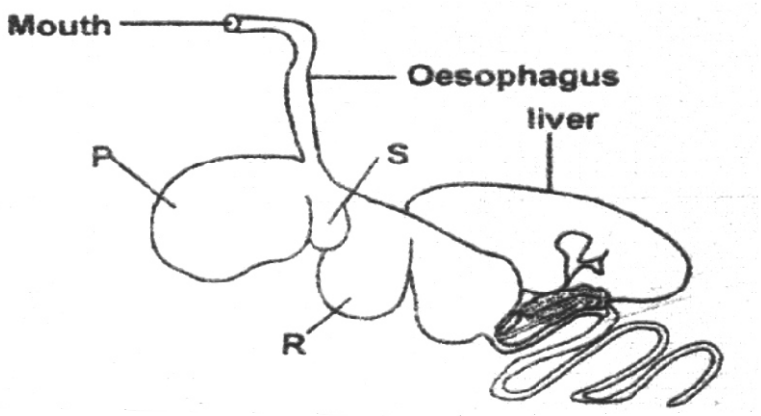
.....

(d) State **two** other methods of identifying the cattle (2mks)

.....

.....

22. The illustration below shows part of the digestive system of a cow. Study it carefully and answer the questions that follows



a) Identify the part labelled R on the diagram (1mk)

.....

(b) Which of the part labelled is also referred to as

(I)The "book or many plies " (1mk)

.....

(ii) The 'honey comb" (1mk)

.....

(c) State **two** microbial activities that take place in the chamber labelled P (2mks)

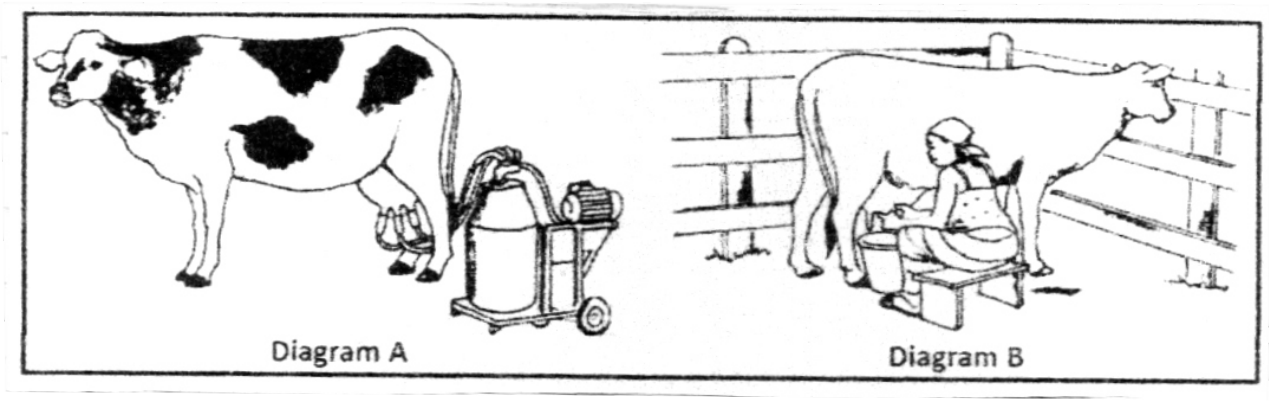
.....

.....

(d) State the role of oesophageal groove in ruminants (1mk)

.....

23. The diagrams below shows some farm operations. Study it carefully and answer the questions that follows .



(a) (i) Identify the operation in photograph A (1mk)

.....

(ii) State **one** advantage of A over B (1mk)

.....

b(i) What activity is being carried out in diagram B (1mk)

.....

(ii) Give **two** activities carried out on the animal before the above operation in b(I) (2 x $^{1}/_{2}$ mks)

.....

SECTION C 40 MARKS

Answer any two questions in this section

24(a) Discuss East coast fever disease under the following sub-headings

(i) Causal organism (1mk)

(ii) Name the vector that transmit the disease (1mk)

(iii) Symptoms of attack (5mks)

(iv) Control measure and treatment (3mks)

24 (b) State **five** advantages of live fences (5mks)

(c) Describe the life cycle of a two host tick (5mks)

25(a) State **five** advantages of battery cage system (5mks)

(b) Describe the power transmission system under the following units

(i) Clutch (2mks)

(ii) Gear box (2mks)

(iii) Differential (2mks)

(v) Final drive (2mks)

25 (c) Discuss **seven** advantages of artificial insemination (7mks)

26 (a) Describe **four** predisposing factors of livestock diseases (8mks)

(b) State **five** differences between a mouldboard plough and a disc plough (5mks)

Mouldboard plough	Disc plough

26 (c) Give seven reason why bees swarm (7mks)

EFFECTIVE FORTY EXAMS AGRICULTURE MARKING SCHEME PAPER 2

SECTION A (30MKS)

1. Sahiwal

Red poll

Simmental

Brown swiss ($^1/_2$ x 4 = (2mks)

2. - Burning infested pastures

- Hand picking the tick and killing it

- Double fencing of the pasture land and farm

- Starving the tick to death by practising rotational grazing

- Interfering with the tick environment by ploughing pasture land or top dressing pasture with lime.

($^1/_2$ x 4 = (2mks)

3. Anaemia in piglets

- Curved toe paralysis in poultry

- Milk fever in lactating dairy animals

- Goitre in young calves

- Enzootic ataxia or swayback in lambs

- Osteomalaria Bonne ketosis or acetonemia

- Grass tetany or grass stagger or hypomagnicemia

- Parakeratosis ($^1/_2$ x 4 = (2mks)

4. Mass sekection

Progeny testing

Contemporary comparision ($^1/_2$ x 3 = ($1^1/_2$ mks)

5. Large white
Essex saddle back
Wessex saddle back ($^1/_2$ x 2 = (1mk)

6. - By injections
- Orally through the mouth
- Through the cloaca
- By inhalation through the nose ($^1/_2$ x 4 = (2mks)

7. - Prevent attack by insects and fungi
- To resist elements of weather
- To make it durable and more strong
- To resist water penetration ($^1/_2$ x 4 = (2mks)

8. Black quarter / Black leg
Anthrax ($^1/_2$ x 1= (1mk)

9. (i) Prolactin
(ii) Oxytocin
(iii) Adrenalin ($^1/_2$ x 3= ($1^1/_2$ mk)

10. - Small size / overweight / low weight
- Abnormal shape
- Long storage /poor storage
- Broken shell/irregular shape/Rough shell
- Presence of internal abnormalities like double york , meat spots and other poor candling qualine
($^1/_2$ x 4= (2 mks)

11. - They are not expensive to buy and maintain
- They are economical in fuel consumption
- They can be used in a wider range of farm land including hilly areas
- They can do small tasks within the farm since it is economical ($^1/_2$ x 2= (1 mk)

12. - Limited Capital
- When the land is steep
- If the farmer has little load to carry ($^1/_2$ x 2= (1 mk)

13. - Used as medium of exchange
- Used in social ceremonies
- Used in recreational activities
- Status symbol ($^1/_2$ x4= (2 mks)

14. Mirracidium
Metacercaria ($^1/_2$ x 2= (1 mk)

15. - Durable
- Resistant to fire
- Resistant to weather elements
- Resistant to insect damage and rotting
($^1/_2$ x 2= (1 mk)

16. - To expand the inherited potential of the animal
- Satisfy the consumer's taste
- For economic reasons
- Overcome production problems created by the environment
- Introduce new genes making the animal better in production ($^1/_2$ x 4= (2 mks)

17. In order to maintain gaseous exchange since their brilliant end contains the air space
($^1/_2$ x 1= (1 mk)

18. - Spirit level
- Plumb bob /plumb line
- Masoris square / tape measure / meter rule
- Wood float / steel float
- Mason's trowel
- Mason's hammer / Brick hammer ($^1/_2$ x 2= (1 mk)

19. Body size or weight of the animal
- Environmental conditions within which the animal is
- level of production
- Purpose for which the animal is kept
- Physiological conditions within which the animal is ($^1/_2$ x 4= (2 mks)

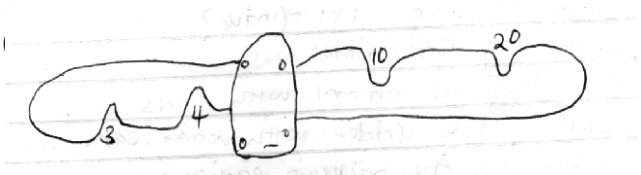
SECTION B (20MKS)

20. (a) N1- Dibber
N2- Marking gauge
N3- Stock and die
N4- Milk chum / can ($^1/_2$ x 4= (2 mks)

(b 20. (a) N1- Dibber
N2- Marking gauge
N3- Stock and die
N4- Milk chum / can ($^1/_2$ x 4= (4 mks)

(c) It is used for making one marking line which is parallel to the edge of the wood metal
to the guide on the cutting line (1x1= (1mk)

21 (a) Ear notching 1x1= (1mk)



(c) Ear notcher (1x1= (1mk)

(d) Branding
Ear tagging
Use of neck strap and chain 2 x1 = (2mks)

22(a) R - Omasum (1x1=(1mk)

(b) (I)R (ii) S 2 x 1 = (2mks)

(c) 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
(2 x1 = 2mks)

d) Allow movement of food from the mouth to the reticulum (1 x 1 = 1mk)

23 (a) (i) Machine milking 1 x 1 = (1mk)
(ii) It is faster hence can be used on large scale
1 x 1 = 1mks
b(i) Hand milking 1 x 1 = (1mk)
(ii) Restraining the animal
- Providing the animal with feeds
- Washing the udder with warm water
- Assembling the milking equipment
- Wiping the udder dry
- Testing for mastitis 2x1 = (2mks)

SECTION C 40 MARKS

24 (a) (i) Theivelia parra (1mk)
(ii) Brown ear tick (1mk)
(iii) - High temperature
- Coughing
- Sight impairment
- Profuse salivation
- Swollen lymph nodes around the base of ears , shoulders and
stifle joints
- Haemowhages in vulva and the mouth
- lachrimation (tears comes out of the eyes)
- Profuse salivation (max 5 mks)

(iv) Controlling of ticks with appropriate methods
- Double fencing to keep away strange animals and confine animals within
- Treatment using appropriate drugs (3mks)

(b) - Cheap and easy to establish
- Tall varieties act as wind breaks e.g kei apple
- Have aesthetic value
- Their roots hold the soil firmly thus controlling soil erosion
- Some species act as livestock feed
- Provide shade to livestock
- Some species have medicinal value
- Thorny species are effective in preventing intruders
- Act as source of organic matter and wood when trimmed (max 5mks)

(c) Eggs on the ground hatch into larvae which climb onto the first host. The larvae feed on blood become engorged and moult into nymphs , The emerging nymphs feed on the same host, become engaged and then drop to the ground to mount . When the adults emerge they find a new host on which they feed on it and mate before the females drop off to the ground to lay egg and the life cycle starts all over again (max 5 mks)

25 (a) - Higher egg production due to less energy wastage by birds
- Cannibalism and egg eating are controlled
- Low labour requirement
- No bullying during feeding

- It is easy to mechanise
- Birds no not contaminate food and water
- Eggs are clean because hens do not step on them
- Higher stocking rate is allowed
- One can keep accurate egg records
- Discourages broodiness
- Easy to handle birds
- It is easy to defect sick birds and isolate them for treatment (max 5mks)

(b) (i) Clutch
- It connect and disconnect the drive shaft to or from the engine respectively
- It enables the tractor to take off gradually and smoothly . It also helps to provide power from th engine to the power take off shaft (2mks)

(ii) Gear box
- It provides different towards speed . It also allows the driver select any forward on reverse gear to suit operation .
- It can also allow change in the speed ration by altering the gears conveniently in the gear box
- It also allows the driver to stop the tractor without suddenly stopping the engine (5mks)

(iii) Differential
- It allows changes in direction of the drive to right angles so that power is transmitted to the rear wheels
- It also enables the rear wheels to travel faster or slower than the other especially when negotiating a corner
- Differential lock avoids the skidding (2mks)

(iv) Final drive
This is where the wheels propel the tractor machine either forward or backward enabling the tractor to more and do useful work . At the same time the tyres allows maximum grip which is also called traction (2mks)

(c) Helps to control breeding disease and parasites
- Prevent large bulls injuring small cows
- Reduces the expenses of keeping a bull
- Semen can be stored for a long time even after the death of a bull
- Controls breeding
- Controls inbreeding
- Eliminates dangerous bulls from the farm
- Useful research tool
- Semen of one superior bull can be used to serve many cows
- Small scale farmer who cannot afford to buy a superior bull can have the cows served at a very low cost (max 7mks)

26(a) **Species of the animal-** This determines the type of disease that is likely to affect that species

and not any other e.g swine fever affects only pigs and new castle disease affects only poultry
- **Breed of the animal** - influences the kind of disease that will affect a particular breed of animal e.g cancer of the eye only affect hereford breed of cattle only
- **Age of animal**- certain disease are associated with animals of a certain age group e.g. piglet anaemia affect only piglets
- **Sex of animal -** certain diseases are associated with the sex of the animal due to different structures of various organs in the two sexes e.g vaginitis affects only female animals as it is a disease of the vagina.
- **Colour of animal** - Animals which are black in colour are likely to suffer from heat stress
- Overcrowding
- **Environment** - Dirty and filthy environment predisposes animal to diseases
- **Herredity**- those diseases that are inherited
- **Physiological c**onditions e/g fatigue, pregnancy may predispose an animal to diseases

4 x 2 = (8mks) mark first four points

(c) Overcrowding
- Sick or infertile queen
- Dampness and bad smells
- Lack of adequate ventilation
- Damage of blood combs
- Outbreak of diseases and parasites
- Shortage of food and water in the surrounding (7mks)

26 (b) Mould board plough	disc plough
- Requires more tractor power to pull when operating - It is rigid hence easily broken by obstacles - Operates at a uniform depth - fewer secondary operations are needed - Invert furrow slices completely - It is rigid hence cannot be used on a field with obstacles	- Requires less power to pull when operating - It is not easily broken by obstacles - Cuts at a varying depth - More secondary operations are necessary - Does not invent the farrow slices completely - Does not invert the farrow slices completely - Can be used on a field with obstacles because the disc rolles over them