

**FORM 3
AGRICULTURE 443/
MARKING SCHEME**

1 Methods of castrating

- Closed method / use of burdizzo
- Open method / surgical method
- Caponization / use of hormones / chemicals

3 x ½ = 1 ½ marks

2. Tools for deworming

- Drenching gun
- Bolus gun / capsule carrier
- Narrow necked bottle

2 x ½ = 1 mark

3. (a) Advantages of multiple stem pruning

- Less skills required to establish
- Easy to prune
- Does not allow accumulation of coffee berry disease

Any 3 x ½ mk = 1 ½ mks

(b) Post harvest practises on grains

- Threshing / shelling
- Drying
- Cleaning
- Sorting
- Grading
- Dusting
- Packaging



4 Name the tool used together with each of the following tools

- Trocar.
- Mallet..
- Screw.
- Bit

5. Rasp file is used for smoothening wooden surface while Bastard file is used for smoothening metallic surface. (clear definition 1x2 = 2mks)

6. Signs of heat in pigs

- Restlessness
- Frequent urination
- Swelling and reddening of vulva
- Frequent mounting of others
- Slimy discharge from the vulva
- Respond positively to riding test

4 x ½ = 2 marks

7. Features of a rabbit hutch

- Spacious
- Raised above ground
- Draught free
- Easy to clean

- Leak proof
- Safe from predators and pests

3 x ½ = 1 ½ marks

8. **Uses of phosphorous**

- Bone formation
- Milk production
- Egg formation

2 x ½ = 1 mark

9. (a) Suckers

- (b) Slips / crowns / suckers
- (c) Stem tuber
- (d) Splits

10. **Sources of nitrogen in the soil**

- Fixation of nitrogen by bacteria.
- Organic manure application.
- Nitrogen fixation fertilizers.
- Nitrogen fixation by lightning

11.

$$(b) \frac{\text{Amt of weight gained}}{\text{Food take}} = \frac{100}{400} = \frac{1}{4}$$

= 1:4

(1x1= 1mk)

12. **Advantages of artificial calf rearing**

- Allows for maintenance of high standard hygiene
- Accurate records of milk yield can be easily maintained.
- Cows continue to produce milk even in the absence of their calves
- There is probability of farmer selling more milk thereby maximizing profits

4 x ½ = 2 marks

13. **Advantages of upgrading**

- Enable farmers to improve low grade stock using pure breed bulls.
- Method is used to replace one breed by another
- It is more economical to upgrade the local breeds rather than purchasing pure breeds
- Resulting breeds are more tolerant to harsh environments and have high resistance to diseases.

3 x ½ = 1 ½ marks

14. **Reasons for treating timber**

- Prevent warping
- Prevent roffing / damage by fungi
- Reduce damage by insects
- Enable timber to achieve its maximum strength

4 x ½ = 2 marks

15. **Reasons for docking**

- Fat distribution throughout the body
- Prevent blowflies
- Keep rear part of animal clean
- Avoid fooling of wool

4 x ½ = 2 marks

16. Reasons for using certified seeds

- Free from foreign materials e.g. weeds
- Gives rise to vigorously growing plants
- Have high germination percentage
- Free from pest and diseases attack/healthy
- True to type not contaminated (any 4x ~ = 2mks)

17. Give two farming practices that help to reduce water stress in crop

- Mulching
- provision of shade

SECTION B

18 a) Type of gate

- Barbed wire gate

b)

- D- dropper
- E-wire loop

c) i) **one function of the part labelled E.**

- Support the gate/reign the king post

ii) **Functions of the gate**

- Prevent intruders/wild animal into the farm
- Prevent livestock from moving out of the farm
- Used as entrance into/exit from the farm/control grazing in paddocks

19. a) **Feeding Practice**

- Artificial rearing/bucket feeding

b) i) **Procedure of rearing practice**

- Put clean milk in a clean bucket
- Place the index finger into the calf's mouth
- Lower the finger slowly until it is submerged in milk
- Slowly withdraw the finger
- Repeat steps (i)- (iv) until the calf learns.

ii) **Precautions in rearing practice**

- Right amount
- Interval feeding
- Right temperature
- Clean equipment
- Observe personal hygiene.

20. Plant population = $\frac{\text{Area}}{\text{Spacing} \sqrt{1/2}}$

Area = 5.4 hectares

1ha = 10,000m²Area = 54,000m² $\sqrt{1/2}$

$$\text{Spacing} = \frac{45}{100} \times \frac{20}{100}$$

$$\frac{54,000\text{m}^2}{0.45 \times 0.2} = \frac{54000}{0.09} \times 100 \sqrt{\frac{1}{2}}$$

$$= 600,000 \text{ bean plants}$$

21. (a) Ownership and right to use land ✓ (1 mark)
- (b) (i) Communal land tenure – community / part of it / has right to own and use land.
Co-operative land tenure - Members with common interests have right to own and use land.
- (ii) Concession – individual company / corporation obtain from government right to use land for a specified period of time.
State ownership – government owns land that is gazetted but not registered nor adjudicated e.g forest national park.

SECTION C (40 MARKS)

22. (a) **Methods of harvesting water on the farm**

- Ponds/ water pumps
- Dams/ weirs
- Roof catchments
- Rock catchments
- Retention ditches/ level terraces (5x1=5mks)

(b) **Farming activities that encourage soil erosion**

- Continuous cropping without giving the land a rest
- Burning
- Ploughing along the slope/ farming on step land
- Deforestation
- Ploughing along river banks
- Cultivating when the soil is too dry or wet
- Overgrazing/overstocking
- Flooding/application of a large amount of water at high rate
- Over cultivating the land to fine tilth/pulverizing the soil (Any 5 x 1 = 5 mks)

(c) **Farming practices that conserve soil in a farm**

- Mulching by reducing the speed of run- off and reducing the impact of raindrops
- Contour farming by reducing the speed run off
- Terracing effective length of the slope and consequently slowing down speed of running off
- Planting trees/ holding soil particles together hence reducing effects of wind erosion and reducing the impact of rain drops,
- Establishing and maintaining vegetated water; by reducing the impact of livestock on the soil erosion

Establishing trash lines/ zones lines by reducing speed of run- off an effects of wind erosion (10x1=10mks)

4 x 1 = 4 marks

23. (a) **Features of a good grain store**

- Should be leak proof
- Should be raised above the ground
- Should be well ventilated
- Should be easy to clean
- Should be Strong enough to support the weight of the stored items
- Should be easy to load and off load
- Should be vermin – proof

6 x 1 = 6mks

(b) **Maintenance practices on saws**

- Be stored in hanging position
- Teeth be sharpened regularly
- Used for the right purposes
- Blade be oiled to prevent rusting if on long storage
- Loose screws and nuts holding the handle be tightened
- Blade be straightened when bent
- Broken handle be replaced; worn out blade be replaced.

6 x 1 =

(c) **Digestion of grass in rumen of cattle**

- Temporary store for food
- Food is churned, mixed and softened with water
- Micro-organism act on cellulose fermenting it
- Digestion of cellulose to produce volatile fatty acids e.g. acetic, propionic, butyric etc
- Fats are broken down to fatty acids and glycerol
- Proteins are split by micro-organisms into peptides and aminoacids
- Synthesis of essential amino acids from nitrogen compounds e.g urea
- Synthesis of vitamin B complex and vitamin K
- Gases such as methane, carbon (IV) oxide and hydrogen are belched.
- Volatile fatty acids are absorbed in the rumen

8 x 1 = 8 marks

24. a) **Methods of drainage**

- Use of open ditches/channels/furrows
- Use of underground pipes/
- French drains
- Cambered beds
- Mechanically pumping
- Sub soiling

b) **Procedure of castrating bull using burdizzo**

- Restrain animal
- With one hand, pull the testes to let them free from scrotal neck
- Using the other hand, place the cusps of the burdizzo to clasp the scrotal neck
- With your free hand, locate the spermatic cord of one testis and press the handles of the burdizzo till a snap sound is heard
- Repeat the pressing on the same spermatic cord but at a lower position below the first cut
- Repeat the procedure of cutting the spermatic cord on the other testis
- Finally release the animal.

7 x 1 = 7mks

c) **Reasons why bees abscond from a beehive**

- Shortage of food
- Outbreak of diseases and parasites
- Damage of brood combs
- Lack of adequate ventilation
- Dampness and bad smells
- Sick or infertile queen
- Overcrowding
- Noise
- Shortage of water

Any 8 x 1 = 8mks

