



443/2 MS
KCSE
AGRICULTURE
Paper 2
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MARKING SCHEME

**THE KENYA NATIONAL EXAMINATIONS COUNCIL
KENYA CERTIFICATE OF SECONDARY EDUCATION**

AGRICULTURE

PAPER 2

**MARKING SCHEME
(CONFIDENTIAL)**

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EXERCISE**

This paper consists of 8 printed pages.

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Turn Over

SECTION A (30 marks)

1.	<p>Functions of walking area</p> <ul style="list-style-type: none"> ➤ Exercise ➤ For dunging ➤ sunning 	(2 x ½ mark)	(1 mark)
2.	<p>Characteristics of succulent roughages</p> <ul style="list-style-type: none"> ➤ High fibre content ➤ High moisture content ➤ Low protein content ➤ High carbohydrate content 	(4 x ½ mark)	(2 marks)
3.	<p>Symptoms of contagious abortion</p> <ul style="list-style-type: none"> ➤ Spontaneous abortion/premature birth <i>- Low libido - Barrenness</i> ➤ Retained afterbirths/placenta after abortion ➤ Orchitis in bulls/low-libido/barrenness in cows ➤ Yellow brown slimy/odourless discharged from vulva after abortion 	(4 x ½ mark)	(2 marks)
4.	<p>Factors considered in selecting eggs for marketing</p> <ul style="list-style-type: none"> ➤ Cleanliness ➤ Size of egg ➤ Candling qualities <i>Accept. specific candling qualities e.g. freshness.</i> ➤ Egg colour - <i>shell texture</i> 	(4 x ½ mark)	(2 marks)
5.	<p>Maintenance practice of hoof trimmer <i>- cutter</i></p> <ul style="list-style-type: none"> ➤ Repair broken parts <i>e.g. handle.</i> ➤ Oil the metal parts on long storage ➤ Sharpen jaws when blunt ➤ Clean after use ➤ Grease moving parts to reduce friction ➤ Tightening the nut - <i>proper storage.</i> 	(4 x ½ mark)	(2 marks)
6.	<p>Disadvantages of a tractor as a source of power</p> <ul style="list-style-type: none"> ➤ Expensive to buy and maintain ➤ Requires skilled personnel ➤ Their use is limited in certain areas <i>ie. slopy areas.</i> ➤ It requires support services <i>P.W.T.T.E</i> - <i>Expensive to maintain</i> 	(2 x ½ mark)	(2 marks)
7.	<p>Beef breeds</p> <ul style="list-style-type: none"> ➤ Hereford ➤ Galloway ➤ Aberdeen angus ➤ Beef shorthorns 		

	<ul style="list-style-type: none"> ➤ Charolais 	(4 x ½ mark)	(2 marks)
8.	<ul style="list-style-type: none"> Origin of breeds ➤ Friesian - Holland/Holstein (Denmark) <i>except Netherlands</i> ➤ Ayrshire - Scotland 	(2 x ½ mark)	(1 mark)
9.	<ul style="list-style-type: none"> Control measures of foot rot ➤ Clean environment/avoid dampness/muddy conditions ➤ Regular hoof trimming ➤ Regular walk through foot bath/copper II sulphate solution ➤ Treat wounds with antiseptics ➤ Isolate sick animals 	(4 x ½ mark)	(2 marks)
10.	<ul style="list-style-type: none"> Signs of heat in pigs ➤ Restlessness ➤ Frequent urination ➤ Swelling & reddening of the vulva ➤ Clear & slimy mucus discharge from the vulva ➤ Frequently mounting others ➤ Positive response to riding test 	4 x ½ mark)	(2 marks)
11.	<ul style="list-style-type: none"> Categories of livestock parasites ➤ Internal parasites/endo-parasites ➤ External parasites/ecto-parasite 	2 x ½ mark	(1 mark)
12.	<ul style="list-style-type: none"> Types of calf pens ➤ Raised permanent pens / <i>slatted floors</i> ➤ Permanent calf pen with concrete floors ➤ Mobile calf pens 	2 x ½	(1 mark)
13.	<ul style="list-style-type: none"> Importance of identification ➤ Selection/breeding ➤ Disease control/treatment ➤ Feeding ➤ Record keeping ➤ Culling - <i>For tracing purposes.</i> 	4 x ½	(2 marks)
14.	<ul style="list-style-type: none"> Preventive measures for livestock diseases ➤ Isolation of sick animals ➤ Imposition of quarantine ➤ Use of prophylactic measures ➤ Slaughter and proper disposal of infected animals ➤ Use of antiseptics/disinfectants 		

*To see
- control of vectors
- vaccination
- deworming
- prophylactic
- drugs.*

*- Proper feeding,
- Proper housing
- Proper hygiene
- Control.
- Proper selection and breeding.
- Treatment of sick animals.*

		4 x ½	(2 marks)
15.	Reasons of castration <i>-to control inbreeding.</i> > Control breeding > Control breeding diseases > Hasten growth rate > Increase quality of meat especially in goats <i>-to make the animal doable.</i>	4 x ½	(2 marks)
16.	Causes of livestock diseases > Bacteria <i>-Chemical causes.</i> > Protozoa <i>-Parasites</i> > Virus <i>-Amount of food eaten.</i> > Nutritional disorders > Physical injuries <i>-Fungi.</i>	4 x ½	(2 marks)
17.	Methods of fish preservation > Freezing > Salting > Sun drying > Smoking	4 x ½	(2 marks)

SECTION B (20 marks)

18.	(a) Cattle/sheep/goat		(1 mark)
	(b) E - Abomasum <i>True stomach.</i>		(1 mark)
	F - Reticulum <i>Honey comb</i>		(1 mark)
	(c) Functions of rumen(G) > Temporary storage of food before regurgitation ✓ > Fermentation of food ✓ > Microbial digestion ✓ → Synthesis of <u>vitamin B</u> complex ✓ ⇒ Synthesis of Amino acids ✓ ⇒ Breakdown of protein to peptides ✓ ⇒ Breakdown of carbohydrates and cellulose to carbon(IV) oxide and volatile fatty acids ✓ > Absorption of ammonia gas & fatty acids ✓	2 x 1	(2 marks)
19.	(a) (i) Fowl pox		(1 mark)
	(ii) Legs/vent/wings		(1 mark)

	(b) Predisposing factors of fowl pox <ul style="list-style-type: none"> - Presence of wounds - Presence of biting insects e.g. mosquitoes/mites 	2 x 1	(2 marks)
	(c) - Vaccination <ul style="list-style-type: none"> - Killing and proper disposal of all infected birds 	1 x 1	(1 mark)
20.	(a) (i) Debeaking (ii) It cauterizes the wound Prevent bleeding Prevent infection Sterilize the wound.		1 mark
	(b) - Cannibalism - Egg eating	2 x 1	2 marks
	(c) - Provide adequate balanced diet - Hang vegetables in the poultry house to keep the birds busy by hanging vegetables in the poultry house Scattering	1 x 1	1 mark
21.	(a) Elastrator and rubber ring Elastrator ✓ Rubber ring ✓	1 x 1	1 mark
	(b) (i) docking (ii) castration (iii) dis-budding	2 x 1	2 marks
	(c) (i) bloodless (ii) Less painful/stressful 2 x 1 Less stressful - Less skills required	2 x 1	2 marks

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SECTION C (40 marks)

<p>22.</p>	<p>(a) Requirements of ideal calf pen</p> <p><i>Easy to clean</i> Cleanliness: - pens should have concrete floors to facilitate cleaning</p> <p><i>Make Dry & Warm</i> Dryness and warmth: - dry litter should be placed on the floor to avoid dampness/wetness.</p> <ul style="list-style-type: none"> ➤ Roof should not leak/avoid spilling water on the floor to discourage dampness and wetness of the litter ➤ Adequate space: Should be spacious for exercise, feeding and watering of calves. ➤ Proper lighting - should be well lit as light is necessary for synthesis of vitamin D. ➤ Proper drainage - should be constructed on a well-drained place to avoid dampness ➤ Draught free - to prevent entry of cold winds and discourage infections like pneumonia ➤ Proper ventilation - to allow free air circulation ➤ Single housing - calves should be housed singly to prevent licking one another which can lead to formation of hair – balls in the rumen 	<p>7 x 1 (7 marks)</p>
	<p>(b) Disadvantages of natural mating</p> <ul style="list-style-type: none"> ➤ High chances of inbreeding ➤ Possible to transmit sexual diseases ➤ Males need extra costs of feeding and rearing ➤ Large males can injure small females ➤ A lot of semen is wasted ➤ Difficult and expensive to transport a bull over long distances to serve a cow ➤ Bulls are expensive to acquire ➤ Most bulls are aggressive hence difficult to handle 	<p>8 x 1 (8 marks)</p>
	<p>(c) Pre-disposing factors</p> <ul style="list-style-type: none"> ➤ Species of animal – certain diseases affect specific species e.g. swine fever only affects pigs ➤ Breed of the animal – certain diseases affect specific breeds of animals e.g. cancer of the eye only affects Hereford breeds ➤ Age of the animal – certain diseases are associated with certain age group of animals e.g. piglet anaemia only affects piglets ➤ Sex of the animal – certain diseases are associated with certain sex of animals e.g. mastitis only affects female animals 	

+ Age - old animals are likely to be infected than young ones.

** Stage of lactation - animals are likely to suffer at the beginning and at the end of lactation.*

** Udder attachment - animals with large pendules loosely hanging udder + long teats are more susceptible to mastitis*

** Incomplete milking - when milk left in teat canal it acts as culture medium for bacteria*

** Mechanical injuries - wounds on teats/udder allow micro-organisms entry into the udder.*

** Poor sanitation - increases multiplication of the bacteria causing mastitis.*

** Poor milking techniques - may result in mechanical injury of the teats, sphincter muscles of the teats* 6x1 = 6mks

	<ul style="list-style-type: none"> ➤ Colour of the animal: Animal which are black in colour suffer from heat stress/light pigmented skin suffer from photosensitization when exposed to high light intensities <p style="text-align: right;">5 x 1</p>	(5 marks)
23	<p>(a) Requirements of artificial brooder</p> <ul style="list-style-type: none"> ➤ Litter: should be inform of wood shavings to maintain warmth and absorb moisture ➤ Fresh air/ventilation: should have holes for ventilation on the walls to allow proper gaseous exchange ➤ Heat source – a heat source be provided and controlled to maintain correct temperature within the brooder. ➤ Well lit – to allow chicks to see feeds and water. ➤ Dim light is recommended as bright light blinds the chicks and enhances toe pecking ➤ Have <u>adequate waterers</u>; and feeders; to allow for proper feeding and watering of chicks without overcrowding ➤ Shape of the brooder : should be round in shape to avoid chicks overcrowding at the corners ➤ Fresh feed and water: ➤ Some feeds should be put on newspapers on the floor until chicks learn to feed from the feeders <p><i>- Have adequate feeders - to allow for proper feeding without overcrowding.</i></p>	9 x 1 (9 marks)
	<p>(b) Operation of a four stroke cycle engine</p> <ul style="list-style-type: none"> ➤ Induction stroke; the piston moves down the cylinder; inlet valve opens; fresh air and petrol is drawn into the cylinder; ➤ Compression stroke; the inlet valve closes, outlet valve closes; the piston up moves up the cylinder; this compresses air fuel mixture in the combustion chamber; ➤ Power stroke; a spark produced by the spark plug; this causes compressed fuel mixture to light and expand; resulting in pressure that forces piston down the cylinder; ➤ Exhaust stroke: piston moves up the cylinder; eliminating burnt fuel mixture through open exhaust valve; 	11 x 1 (11 marks)
24	<p>(a) Control measures of tapeworms</p> <ul style="list-style-type: none"> ➤ Use of anthelmintic drugs <i>prophylactic drugs</i> ➤ Keep animal house clean and disinfected ➤ Rotational grazing ➤ Keep feeders and waters clean ➤ Proper disposal of human excreta ➤ Proper inspection of meat ➤ Proper cooking of meat <p><i>- ploughing of infested pastures</i></p>	

	<ul style="list-style-type: none"> ➤ Burning of infected pastures 	5 x 1	(5 marks)
	<p>(b) Milking equipment</p> <ul style="list-style-type: none"> ➤ udder cloths and towels for cleaning/drying the udder ➤ filtering pads for straining milk ➤ milking jelly for applying on teats to prevent cracking ➤ warm water for washing the udder ➤ milking pail/bucket for milking / holding milk during milking ➤ milking churn for holding milk in storage or transportation ➤ milking stool to sit on during milking ➤ weighing scale for weighing milk ➤ cooler/fridge for cooling milk ➤ strip cup for checking mastitis ➤ milking machine for machine milking ➤ rope/chain for retraining the cow 	10 x 1	(10 marks)
	<p>(c) Life cycle of a one host tick</p> <ul style="list-style-type: none"> ➤ Eggs hatch larvae which climb onto the host and feed on blood; ➤ Engorged larvae moult, nymphs emerge, feed on blood; ➤ Engorged nymphs moult, adults emerge; ➤ Adults feed on blood and mate; ➤ Engorged female falls to ground and lays eggs; 	5 x 1	(5 marks)