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443/2 MS
KCSE
AGRICULTURE
Paper 2
MARCH 2022
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

unblock blocked nozzles

SECTION A (30 marks)

1.	<ul style="list-style-type: none"> Clean after use Grease the moving parts Tighten loose nuts and bolts Repair broken parts painting / apply oil on metallic parts Replace worn out parts <p>(4 x 1/2 mark)</p>	(2 marks)
2.	<ul style="list-style-type: none"> Serve as home pets Provide skin for leather industries Depend on locally available feeds They multiply faster; hence easier source of income Requires small piece of land Serve as a source of manure Serve as a source of meat and fur serve as a source of fur <p>(4 x 1/2 mark)</p>	(2 marks)
3.	<ul style="list-style-type: none"> Cleaning Provide litter to keep it dry and warm Holes in the floor should be filled with concrete / repair broken parts Timber rails enclosing the runs should be replaced when broken / replace worn out parts Should be disinfected to control disease agents Should be sprayed or dusted to control parasites <p>(4 x 1/2 mark)</p>	(2 marks)
4.	<ul style="list-style-type: none"> Rumen / paunch Reticulum / honey comb Omasum / book / manyplies Abomasum / true stomach <p>(4 x 1/2 mark)</p>	(2 marks)
5.	<ul style="list-style-type: none"> Sudden noise disease and parasite attack lack of inadequate food and water sudden change of weather sudden change of routine management introduction of new flock Presence of predators / strangers parasite attack Lack of water overcrowding <p>(4 x 1/2 mark)</p>	(2 marks)
6.	<ul style="list-style-type: none"> a) To allow milk synthesis to take place; to maintain high milk yield; stimulate milk let down b) To maintain proper hygiene c) Effects of oxytocin last for 5-7 minutes 	(2 marks)

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	d) Avoid early drying off; Prevent mastitis infection; increase total milk yield per lactation (4 x ½ mark)	(2 marks)
7.	a) Age of the animal b) Size/ production level ^{weight} of the animal c) Physiological condition of the animal/ health d) Breed of the animal - Production level/activity of the animal (4 x ½ mark)	(2 marks)
8.	a) Holding, tightening and loosening pipes b) Fine sawing in woodwork/cutting joints c) Smoothing curved surfaces of wood d) Expand rubber ring; during docking/castration/dehorning (½ mark)	(2 marks)
9.	➤ Vaccination ➤ Killing/destroying affected animals ➤ Proper disposal of foetus/carass ➤ Use of healthy semen/bulls/cows/artificial insemination ➤ Observe hygiene on the farm - all cleanliness ➤ Test the breeding cattle for the disease ➤ Avoid contact with infected animal foetus/carass/sick animal (4 x ½ mark)	(2 marks)
10. (a)	➤ Absorb moisture ➤ Maintain warmth 2 x ½ mark	(1 mark)
(b)	➤ Evenly distribute heat within the brooder; ➤ Prevent overcrowding of chicks at corners 2 x ½ mark	(1 mark)
11	➤ Ignition coil ➤ Distributor ➤ Contact breaker ➤ Conductor ^{Condenser} ➤ Spark plug ➤ Wires ➤ Battery ➤ Ignition key/button (4 x ½ mark)	(2 marks)
12(a)	➤ Restlessness ➤ Making a nest ➤ Plucking of belly fur ➤ Loss of appetite 2 x ½	(1 mark)

(b)	> 3 rd , 4 th , 5 th , 6 th , 7 th , 8 th April 2021	(½ mark)
(c)	Kindle / Kindling	(½ mark)
13.	<ul style="list-style-type: none"> > many calves can be reared at the same time > the calf is given the correct amount of milk > proper milk yield records are kept > Orphaned calves can be successfully raised > Easy to maintain high standards of sanitation > Likelihood of a farmer selling 	<p>Cow can produce milk in the absence of the calf</p> <p>more milk hence making more profits</p> <p>(2 marks)</p>
14.	<ul style="list-style-type: none"> > It is free from disease causing organisms > Has no hair, dirt or dust > Has high keeping quality > Has good flavour > Chemical composition is within the expected standards > odourless 	<p>4 x ½</p> <p>(2 marks)</p>
15.(a)	<ul style="list-style-type: none"> > Artificial insemination > Natural mating > Embryo transfer 	<p>2 x ½</p> <p>(1 mark)</p>
(b)	<ul style="list-style-type: none"> > Foot and mouth disease > Anthrax > Rinderpest 	<p>2 x ½</p> <p>(1 mark)</p>

	SECTION B (20 marks)	
16.(a)	R – tractor (1 mark) S- animal power (1 mark)	(2 marks)
(b)	S – Yoke (1 mark)	(1 mark)
(c)	<ul style="list-style-type: none"> > Clean after use > Clean and unblock nozzles > Paint metallic parts to prevent rusting > Tighten loose nuts & bolts > Replace worn out parts 	<p>- proper storage</p> <p>- Lubricate moving parts/grease</p> <p>- Repair broken parts</p> <p>apply oil on metallic parts</p> <p>2 x 1</p> <p>(2 marks)</p>
17. (a)	Louse(lice) (1 mark)	(1 mark)
(b)	<ul style="list-style-type: none"> > Emaciation on heavy infestation > Sucks blood causing anaemia > Retarded growth > Damages wool lowering its quality > Irritation on the skin 	

	➤ Cause wounds leading to secondary infections 4 x 1	(4 marks)
18. (a)	Natural incubation	(1 mark)
(b)	<ul style="list-style-type: none"> - It is less laborious - Little skills is required - Cheap/small scale farmers can use it to multiply their flocks - The margin of risk is reduced 	(4 marks)
19.	<p>60 fish meal 10 10 parts fish meal (1 mark)</p> <p>Maize meal 40 40 part maize meal (1 mark)</p> <p>total 50 (1 mark)</p> <p>Fish meal $\frac{10}{50} \times 200\text{kg} = 40\text{kg}$ (1 mark)</p> <p>Maize meal $\frac{40}{50} \times 200\text{kg} = 160\text{kg}$ (1 mark)</p> <p>The Candidate must indicate units kg to earn a mark as well as parts</p>	(5 marks)
SECTION C (40 marks)		
20.	<p>(a) (i) Causal organism - <i>Escherichia coli</i> (1 mark) / Bacteria (1 mark)</p> <p>(ii) Predisposing factors</p> <ul style="list-style-type: none"> - unhygienic conditions in the houses of the young one - over feeding the calf with milk cold milk - lack of colostrum - feeding the calf at irregular intervals - absence of green fodder in the diet/lack of vitamin A <p>- Feeding the calf on cold milk 3 x 1 = 3 marks</p>	(3 marks)

	<p>(iii) Control measures</p> <ul style="list-style-type: none"> - maintain cleanliness in the calf pen - avoid dampness on the floor / have a <i>dotted floor/put dry litter</i> - have separate attendant for sick calf - administration of antibiotics - disinfection of fingers if used to induce calves to drink - Calving should be done on a clean disinfected area - Replace milk feeding with warm water mixed with glucose for one day as the first symptom is seen <p>4 x 1 (4 marks)</p>	<p>www.elibrary.co.ke</p>
	<p>(b) Artificial rearing of chicks from day old up to the end of brooding</p> <ul style="list-style-type: none"> - Ensure brooder corners are rounded - Provide enough brooding space depending on the number and age of chicks - Clean and disinfect brooder/equipment - Provide proper litter/wood shavings on the floor - Maintain proper ventilation by adjusting the opening - Provide fresh adequate and quality feed/chick mash - Provide brooder with reliable and appropriate lighting/dim light - Control parasite using appropriate method - Vaccination/prophylactic drugs/isolate and treat the chick immediately - Debeaking 8-10 days towards end of brooding - Keep proper records - Provide adequate waterers/feeders - Gradually introduce growers mash at 7th week <p><i>- provide plenty of clean water</i></p> <p>(12 x 1) marks</p>	<p><i>- provide glucose in water if chicks appear weak</i> <i>- spread newspapers on the floor to prevent chicks from eating litter</i> <i>- Provide source of heat.</i></p> <p>www.elibrary.co.ke www.elibrary.co.ke</p>
21.(a)	<ul style="list-style-type: none"> ➤ Milk is made from the food the animal eats ➤ Digested food is carried by blood to the udder where milk is synthesized ➤ Low levels of oestrogen towards the end of pregnancy activate the pituitary gland to secrete prolactin 	

	<ul style="list-style-type: none"> ➤ Milk secretion is initiated towards the end of the gestation period by a hormone known as prolactin ➤ Milk secreted is stored in the hollow cavities of the glomerular region and the numerous ducts within it ➤ Some milk drains into the gland and treat <i>fat cistern</i> where it is stored 	<p>5 x 1</p> <p>5 marks</p>
(b)	<ul style="list-style-type: none"> ➤ Should have well set apart legs ➤ Should have 12 or more teats ➤ Should have strong feet and legs ➤ Should have deep body conformation ➤ Should have well-spaced teats ➤ Should be long ➤ Should be healthy ➤ Should be of good temperament ➤ Should be free from any physical defects ➤ Should have good mothering ability 	<p><i>- highly prolific</i></p> <p>6 marks</p>
(c)	<ul style="list-style-type: none"> ➤ Cannibalism and egg eating are controlled ➤ Accurate egg records can be easily kept ➤ Birds do not contaminate food and water ➤ Broodiness is discouraged as birds do not reach eggs ➤ A large number of birds can be kept in a small area hence higher stocking rate ➤ Sick birds can be detected and isolated for treatment ➤ There is low labour requirement ➤ There is no bullying during feeding ➤ The system can be easily mechanized ➤ Wire floors prevent re-infestation of parasite worms and coccidiosis ➤ Handling is easy as hens are restricted to a small space ➤ Clean eggs are collected ➤ Higher egg production due to less energy wasted by birds ➤ <i>curled birds have</i> 	<p>9 x 1</p> <p>9 marks</p>
22(a)	<ul style="list-style-type: none"> ➤ Control water pollution ➤ Harvest at the correct maturity stage ➤ Maintain appropriate water level in the fish pond always 	

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- Removal of undesirable vegetation
- Removal of silt
- Planting grass where necessary
- Repair dykes/broken fences

	<ul style="list-style-type: none"> ➤ Aerate the water by ensuring constant inflow and outflow of water ➤ Supply adequate feeds regularly ➤ Control stocking rate/cropping ➤ Regular fertilization of the pond ➤ Control predators 	<p>www.elibrary.co.ke</p> <p>5 x 1</p> <p>5 marks</p>
(b) (i)	<ul style="list-style-type: none"> ➤ Accomplishes the work efficiently ➤ Can perform more heavy tasks than human labour / makes work easier ➤ Cheaper per unit work done in large operations ➤ Economy of labour demand/uses less labour ➤ Makes farm operations to be done timely <p>- Improves labour efficiency</p> <p>- Reduces greatly work (5 marks)</p> <p>- work is done faster</p>	<p>5 x 1</p> <p>(5 marks)</p>
(b) (ii)	<ul style="list-style-type: none"> ➤ Loss of weight/emaciation ➤ Pot bellies ➤ Indigestion / diarrhoea / constipation ➤ Anaemic condition due to sucking of blood ➤ Painful abdomen ➤ Recumbence precedes death ➤ Dullness and depression ➤ Presence of eggs / segments / parasites in faeces ➤ Staring coat ➤ Blockage of internal organs 	<p>- Loss of appetite</p> <p>- presence of blood stains in faeces due to wounds in the alimentary canal</p> <p>- parasites in faeces</p> <p>6 x 1</p> <p>(6 marks)</p>
(c)	<ul style="list-style-type: none"> ➤ When inspecting to ascertain any abnormality or signs of diseases ➤ When administering any treatment to the animal ➤ When milking the animal ➤ When spraying or hand dressing the animal with chemicals to control parasites ➤ When performing practices like deworming, disbudding, castration, hoof trimming etc ➤ Pregnancy diagnosis 	<p>www.elibrary.co.ke</p> <p>4 x 1</p> <p>(4 marks)</p> <p>(each practice to score independently)</p>