Kenya Certificate of Secondary Education AGRICULTURE 443/2 PAPER 2 SECTION A (30 MARKS)

Answer all questions in this section in the spaces provided

- Give four differences in digestion between a sheep and a pig. (2marks) sheep have four stomach chambers/polygastric while pigs have simple stomach/monogastric
 - Sheep chew the cud while pigs do not chew the cud
 - Sheep have no ptyalin in saliva while pigs have
 - digestion of cellulose occurs in the rumen in sheep while in pigs it occurs in the caecae
- 2. State two reasons for carrying out egg candling before incubation (1mark)
 - To detect physical abnormalities
 - To detect cracks on egg shells
 - To check position and size of air cell
- 3. Give three symptoms of liver fluke attack in livestock (1 ½ marks)
 - Swollen abdomen
 - Digestive disorder due to blockage of bile ducts
 - Anaemia due to destruction of liver tissues
 - Oedema/swollen lower jaws
 - Emaciation
 - Death in extreme cases
- 4. Give one function for each of the following parts of the bull's reproductive system.

(1 ½ marks)

- (a) Vas deferens conducts sperms from the epididymis to the urethra
- (b) Epididymis stores sperm cells as the mature
- (c) Prepuce protects the glans penis from physical injury
- 5. State three maintenance practices of farm stores. (1 ½ marks)
 - Regular cleaning
 - Clear the vegetation around the stores
 - Repair broken /worn out parts
 - Repair any cracks in the store wall
- 6. Give two reasons of providing a lambing pen for ewes during parturition. (1mark)
 - To ensure the new-born lambs are not trampled upon by other sheep
 - Prevent lambs from wandering and getting chilled in cold weather
 - Reduces disowning of the lambs by ewes

7.	State four signs of heat in a rabbit doe.	(2marks)	
	– Restlessness		
	 Throws itself on its sides 		
	 Bend its tail over the back when mounted 		
	 Tries to contact rabbits in the next hutch by peeping through wire meshes It rubs against objects, walls and feed troughs Swelling and reddening of the vulva Frequent urination 		
8.	Name a tool that is used for weeding in a nursery or in carrot fields.	(½ mark)	
-	Garden trowel		
9.	Differentiate between swarming and absconding in apiculture.	(1mark)	
_	Swarming is where part of the colony led by the queen leaves the hiveto start a new colony due to overcrowding while absconding is the movement of the whole colony due to disturbance.		
10.	. Give two reasons for providing female livestock extra high quality feed 2-3	weeks before	
	and after mating.	(1mark)	
- - - 11.	It induces ovulation in female animals Increases chances of conception Increases prolificacy / chances of twinning Facilitates implantation of embryo in the uterus/ prevent embryonic mortality . State four factors within an animal that determines the amount of water in	ntake by an	
	animal		
		(2marks)	
_	Animal species	(2marks)	
_	Animal species Breed of the animal	(2marks)	
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(b) Nan	ne one protozoan disease that is not vector – borne.	(1mark)
– coccid	osis	
15. Name	two pairs of livestock tools that must be always used together.	(2marks)
– Bull rir	ig and leading stick	
– Trocar	and canula	
– Hypod	ermic needle and syringe	
– Elastra	tor and rubber ring	
16. Give fo	our roles of additives in livestock feed.	(2mark)
– Stimula	te growth	
– Preven	t diseases	
– Preven	t worms infestation or attack	
– Improv	e feeding efficiency or increase the appetite	
17. State	four conditions of a breeding boar that may lead to its culling.	(2marks)
 If infect 	ted by chronic diseases	
– Physic	al injury	
 Old ag 	e	
– Low fe	rtility / libido	
 To cor 	trol inbreeding overweight	
– If it pa	sses undesirable characteristics to off-springs	
18. (a) Wh	at is dry matter as used in livestock nutrition?	(1mark)
 The su 	m total of all carbohydrates, proteins and minerals in a feed.	
(b) State	e two methods of computing livestock ration.	(1mark)
– Pearso	n's square method	
– Trial a	nd error method	
– Linear	programming	
19. Give tv	vo methods of extracting wax from honey combs.	(1mark)
– Use of	solar wax extractor	. ,
– Heatin	g and straining	
20 (a) Na	no the tool used to take the internal temperature of an animal	(1/mark)
20. (d) Ndi	the the tool used to take the internal temperature of an animal.	(⁷ 2 IIIdIK)
– Cinica	r mermonieler From which part of an animal's hody is the temperature taken?	(1/ mark)
(D) — From t	he anus/rectum	(/2 111dfK)
SE	CTION B (20 MARKS)	

Answer all questions in this section in the spaces provided

21.

(a)	Name the type of the bee hive illustrated above Kenya top bar hive	(1mark)		
(b)	Name the parts labeled L, M, Q and N	(2marks)		
	L – Wire loop			
	M - Entrance			
	Q - Top bars			
	N – top cover/roof			
(c)	Name the structure used to ensure that honey combs and brood combs are found in			
	different chambers in the hive	(1mark)		
_	Queen excluder			
(d)) What is the advantage of suspending the beehive using the part labeled L. (1mark)			
_	Discourages honey badger from accessing the bee hive			
22.				
(a)	Name the parts labeled Q, N, S, T and R.	(2marks)		
	Q - caecum			
	N - Crop			
	T – Proventriculus			
	R - Gizzard			
(b)	State the role of the part labeled Q.	(1mark)		
_	Contains micro-organisms to digest celluloce.			
(c)	Give two structural adaptations of R to its functions.	(2marks)		
_	Made of tough ridged muscles on each side			
_	Contains grit(sand)			
23.	A dairy farmer is to prepare a dairy ration containing 18% DCP. The farmer has two			
	feedstuffs namely maize bran containing 8% DCP AND soya bean meal containing 36% DCP			
	(a) Using the pearson's square method, calculate the amount of each feedstuff the farmer			

would require to prepare a 150kg dairy ration. (4marks)



(b) State two factors to consider in choosing feedstuffs for preparing livestock ration

(1mark)

- The cost of the feedstuff
- The nutritional value of the feedstuff or nutrient composition of the feedstuff
- Availability of the feedstuff
- The form or physical nature of the feedstuff

SECTION C (40 MARKS)

Answer only two questions in this section in the spaces provided

- 24. (a) Explain the importance of livestock rearing in Kenya's economy. (10marks)
 - Source of food: Livestock products are used as food e g meat , milk, eggs, honey,
 - Source of income: Livestock and their products are sold by the farmers to earn income/money
 - Source of foreign exchange: Livestock and their products are exported to earn foreign exchange
 - Source of employment:- this either directly by working in livestock production farms or indirectly by working in livestock related industries/ research stations
 - Source of farm power: Draught animals such as oxen, donkeys and camels offer various services on the farm e g ploughing the land and transportation
 - Source of manure : Livestock wastes are used as manure to improve soil fertility e g mar yard manure
 - Social and cultural uses such as Bride price, status symbol, social ceremonies, recreational uses and medium of exchange/barter trade
 - Source of biogas: Livestock wastes are used to produce biogas

(b) Explain the maintenance practices of a fish pond.

- Plant grass on the walls to prevent wall erosion
- Remove weeds growing around and in the fish pond
- Regular removal of sediments, foreign materials and other organisms from the pond
- Remove the vegetation growing on the inlet and spillway to ensure constant flow of water
- Repair the cracks/leakages on the walls
- Replace damaged posts and wires to maintain the fence around the fish pond

(10marks)

- 25. (a) Explain the common predisposing factors of livestock diseases. (14 marks)
- Age of the animal:
 - Certain diseases attack animals at specific age e g scours, piglets' anaemia and pneumonia attack young animals
 - Old animals are prone to disease attack due to weakened body defence mechanism
- Sex of the animal: certain diseases only attack animals of a given sex e g mastitis attack cows and orchitis attack bulls
- Heredity/genetic status: Possession of certain genes, predispose the animal s to certain diseases
- **Breed of the animal:** this predispose the animals to certain diseases e g exotic breeds are prone to tropical diseases than indigenous breeds or Hereford is prone to eye cancer
- Species of the animal: specific diseases only attack specific species of livestock e g new castle attack poultry and swine fever attack pigs
- Body or physiological conditions of the animal such as weakness, pregnancy and fatigue make the animal prone to secondary infection
- Animal movement: movement of animals and mixing with sick ones spread contagious diseases e g
 F.M.D
- Size of the herd/animal population: overcrowding or congestion predispose the animals to certain diseases
- **Physical injuries or wounds** on the skin predispose animals to secondary infections
- Poor animal housing : poor ventilation and sanitation in animal houses predispose animals to diseases e g pneumonia and cocciodiosis
- Weather changes: e g change of weather from hot to cold influences pneumonia and respiratory infections
- Filthy environment: humid and muddy wet conditions favour the breeding of pathogens or vectors.
- Presence of disease vectors such as ticks and tsetse flies
- **Solar radiation** may predispose animals to skin diseases.

(b) Outline the procedure of hand spraying cattle to control ticks. (6marks)

- Restrain the animal appropriately or in a crush
- Spray the entire backline from the shoulders to the tail head
- Spray the sides/flanks in a zig -zag manner to trap and retain the dripping wash from the backline
- Spray the belly with the nozzles facing upwards
- Spray the udder or scrotum and the hind flanks
- Spray the hind legs up to the heels
- Spray under the tail and around the vulva or anus
- Hold the tail switch on the rump and spray it thoroughly to ensure complete wetting
- Spray the neck and the forelegs from the flanks to the knees
- Spray the head and face making sure the base of the horns are thoroughly wetted
- Spray the inside of the ears
- Release the animal

- 26. (a) Describe the life cycle of liver flukes.
 - Adults live the liver of the primary host
 - They lay fertilized eggs which are passed to the bile ducts, alimentary canal (intestines) and finally out in faeces.
 - Eggs hatch in stagnant water into 1st larvae form called miracidia within 9 days which are ciliated and can swim in water
 - Miracidia penetrate the fresh water or mud snail as intermediate host
 - In the snail, miracidia produce embryos that hatch into different larvae forms called **sporocysts**
 - The sporocysts reproduce and multiply into rediae
 - The rediae develop into another larvae form called cercaria
 - Cercaria bore out of the snail and swim out of water to develop into infective stage called metacercaria
 - Metacercria attach themselves on grass in encysted form
 - Encysted metacercaria are picked by the primary hosts when grazing
 - In the host, the cysts dissolve and young adult flukes emerge
 - The young adults penetrate the intestinal wall and migrate to the liver where they settle in the bile ducts and mature, mate and lay eggs to start the life cycle again
 - (b) Describe the preparations carried out before farrowing in pigs. (8marks)
 - Sows are steamed up 3 weeks before farrowing One week before farrowing, carry out the following
 - Deworm the sow against internal parasites
 - Wash and spray the sow with suitable chemical against external parasites
 - Clean and disinfect the farrowing pen
 - Take the sow to the farrowing pen to familiarize it with the environment
 - Provide the farrowing crate to protect the piglets from being laid upon and eaten by the sow
 - Create a creep area with warm beddings or infra-red light to keep the piglets warm
 - Two days to farrowing, feed the sow entirely on bran to act as a laxative