

You have Downloaded, yet Another Great Resource to assist you with your Studies ③

Thank You for Supporting SA Exam Papers

Your Leading Past Year Exam Paper Resource Portal

Visit us @ www.saexampapers.co.za







basic education

Department: Basic Education **REPUBLIC OF SOUTH AFRICA**

NATIONAL SENIOR CERTIFICATE

GRADE 12

AGRICULTURAL SCIENCES P1

....................

NOVEMBER 2015

MEMORANDUM

MARKS: 150

This memorandum consists of 9 pages.

Copyright reserved

Please turn over

SECTION A

QUESTION 1

			TOTAL SECTION A:	45
	1.4.5	Mesoderm ✓	(5 x 1)	(5)
	1.4.4	Layers ✓		
	1.4.3	Per acute/acute ✓		
	1.4.2	Free-range/semi intensive/backyard 🗸		
1.4	1.4.1	Fodder flow/feed flow ✓		
	1.3.5	Impotence VV	(5 x 2)	(10)
	1.3.4	Dystocia ✓✓		
	1.3.3	Vector VV		
1.5	1.3.1	Insulation/ventilation $\sqrt{}$		
13	131	Rile VV		
	1.2.5	None VV	(5 x 2)	(10)
	1.2.4	B only ✓✓		
	1.2.3	Both A and B ✓✓		
	1.2.2	A only ✓✓		
12	121	B only √√		
	1.1.10	C/D ✓ ✓	(10 x 2)	(20)
	1.1.9	B√√		(22)
	1.1.8	C√√		
	1.1.7	B√√		
	1.1.6	B√√		
	1.1.5	C√√		
	114	$D\checkmark\checkmark$		
	1.1.2			
1.1	1.1.1			
4 4		Λ / /		

SECTION B

QUESTION 2: ANIMAL NUTRITION

2.1	Diagrar	am of a digestive system				
	2.1.1	Identify the type of farm animal Monogastric animal/non-ruminant animal ✓	(1)			
	2.1.2	Motivation for QUESTION 2.1.1 Monogastric/simple stomach ✓	(1)			
	2.1.3	Identification of the letters (a) E ✓ (b) C ✓				
		(c) $D \checkmark$	(3)			
	2.1.4	Reasons for NOT feeding roughage• Monogastric/simple stomach ✓• No cellulose-digesting microbes/flora ✓• Cannot digest roughage ✓(Any	(2) (2)			
2.2	Water,	vitamins and minerals				
	2.2.1	 Functions of water Acts as a solvent/assists in the absorption of nutrients ✓ Protects some sensitive tissue/serves as a lubricant ✓ Moisturising the swallowed food/feed ✓ Provides a suitable environment for microbes/flora ✓ Mechanical digestion in mouth/swallowing ✓ Prevents constipation ✓ Assists in the transportation of nutrients ✓ Excretion of waste products ✓ 	v 3) (3)			
	2.2.2	 Vitamin/mineral deficiencies (a) Vitamin D/Calcium/Ca/Phosphorus/P/Copper/Cu ✓ (b) Vitamin A/retinol ✓ 				
		 (c) Iodine/1 ✓ (d) Iron/Fe/Vitamin B₆/B₁₂/Copper/Cu/Cobalt/Co ✓ 	(4)			

4 NSC – Memorandum

2.3 Digestibility co-efficiency

 2.3.1
 Calculation:
 8% (0,08) x 30 kg = 2,4 kg

 Dry material:
 30 kg - 2,4 kg = 27,6 kg ✓

DC = Dry material intake (kg) – Dry mass of manure(kg) x
$$\frac{100}{1}$$
 \checkmark

- $= \frac{27,6 \text{ kg} 12 \text{ kg}}{27,6 \text{ kg}} \qquad \text{x} \qquad \frac{100}{1} \checkmark$
- = 56.5/57 √ % √

2.3.2 Processes to improve digestibility of feeds

- Mechanical processes/grinding/milling/crushing/rolling ✓
- Pelleting ✓
- Heating/roasting/boiling/cooking/steaming ✓
- Additives/supplementing with NPN/molasses/ treating feed with dilute caustic soda (NaOH) solution ✓
- Soaking ✓
- Popping and micronising \checkmark
- Mixing of complementary feeds \checkmark (Any 3) (3)

2.4 **Pearson square**



= 77,14/77% ✓

וע

(5)

(2)

5 NSC – Memorandum

	2.5.1	Mon ∙	ths when there was sufficient veld fodder December ✓		
		•	January ✓		(2)
	2.5.2	Just • •	ification No supplementation during the two months ✓ Only veld fodder was used during the two months ✓	(Any 1)	(1)
	2.5.3	Reas • • •	Sons for introducing a concentrate Animals are prepared/fattened/rounding off for the ma Getting animals ready for breeding ✓✓ For the lambing season ✓✓ Insufficient veld fodder ✓✓	urket ✓✓ (Any 1)	(2)
	2.5.4	Calc	ulation of the fodder for January:		
		(a)	3,4 tons x 1 000 = 3 400 kg ✓		(1)
		(b)	50 sheep x 2 kg intake per sheep x 31 days ✓ = 3 100 kg ✓		(2) [35]
QUES	TION 3:	ANIMA	AL PRODUCTION, PROTECTION AND CONTROL		
3.1	Produ	ction	systems		

Production systems 3.1.1

- A Extensive √
- **B** Intensive ✓

(2)

3.1.2 Comparison of the two systems

	Extensive/A	Intensive/B]
Environment	No/limited/less control ✓	Environment is modified or controlled for production purposes ✓	
Productivity	Low/less productivity ✓	High/more productivity ✓	
Human input	Low/minimal/less 🗸	High/more ✓	(

Reason for keeping cattle in the facility 3.1.3

- Higher productivity/output/efficiency ✓ •
- An environment for feeding/nutrition/protection/control \checkmark (Any 1) (1) •

3.2	Farm a	nimals loosing heat		
	3.2.1	 Ways in which animals lose heat A - Radiation/evaporation/perspiration ✓ B - Conduction ✓ C - Excretion/defecation ✓ 		(3)
	3.2.2	 Other ways of heat loss Convection ✓ Movement/work ✓ Production level ✓ Urination ✓ Breathing ✓ 	(Any 2)	(2)
	3.2.3	 Signs of heat stress in animals Excessive salivation/drooling ✓ Drop/decrease in production ✓ Excessive panting/high respiratory rate/sweating ✓ Open mouth breathing with tongue hanging out ✓ Loss of appetite ✓ Cattle move away from each other ✓ Restlessness ✓ 	(Any 2)	(2)
	3.2.4	 Management practice to reduce heat in A Provision of shelter/shade/cool area ✓ Breeding of heat adapting animals ✓ Use of mechanical cooling systems ✓ Work calmly with animals ✓ Access to drinking water ✓ 	(Any 2)	(2)

3.3 **Pulse and respiratory rate of farm animals**

Line graph of the pulse and respiratory rate of farm animals



(6)

Mark allocations

- Correct heading ✓
- Line graph ✓
- X-axis correctly calibrated/labelled (Species of farm animals) ✓
- Y-axis correctly calibrated/labelled (Pulse and respiratory rates) ✓
- Accuracy/correct values/plotting/both graphs must be correct 🗸
- Correct units (per min.) \checkmark

3.4 Vaccination plan

0.4	Vaconia		
	3.4.1	 Appropriate words/terms for letters A to G A Anthrax ✓ B Cattle/sheep/goats ✓ C Protozoa ✓ D Cattle/sheep/goats ✓ E Blisters on the tongue/nose/lips/mouth/teats/udder/ between the toes/around hooves ✓ F Annually/once a year ✓ G Virus ✓ 	(7)
	3.4.2	Vector for redwater Ticks ✓	(1)
3.5	Control	of parasites	
	Appropr	riate method used to administer remedies	
	3.5.1	Dosing/drenching/injecting/provision of licks ✓	(1)
	3.5.2	Dipping/spraying/spot treatment/injecting ✓	(1)
	3.5.3	Cleaning/apply ointments/medication/apply insecticides/dipping ✓	(1) [35]
QUES	STION 4: A	NIMALREPRODUCTION	
4.1	Embryc	o development	
	4.1.1	Stages of parturition as in pictures A and B A - Ejection/expulsion ✓ B - Preparatory ✓	(2)
	4.1.2	 Incorrect posture of the calf Picture B/B ✓ Reason Retention of one leg towards the vulva/second leg is folded 	(1)
		back 🗸	(1)

	4.1.3	Letter that corresponds with the following activities (a) B ✓ (b) A ✓ (c) A ✓	(1) (1) (1)			
	4.1.4	 Behavioural changes Restlessness/walks around/in pain and discomfort ✓ Loss of appetite ✓ Isolation/nesting behaviour ✓ Tail raising ✓ Lows often/bellowing noises ✓ Frequent urination ✓ (Any 3) 	(3)			
4.2	Graph t	araph that represents hormones in the oestrus cycle of a cow				
	4.2.1	 Definition of oestrus cycle Hormonally-controlled cycle of activity ✓ of the female reproductive organs ✓ OR Recurring periods of oestrus ✓ alternating with sexual rest in the matured female ✓ (Any 1) 	(2)			
	4.2.2	 Range of days in which progesterone level is the highest From day 9/10 to day 15/16 (indicate any two days within the range) ✓ 	(1)			
	4.2.3	Reason for the drop in the level of FSH between days 2 and 3 Oestrogen levels is at its peak/high/went up \checkmark	(1)			
	4.2.4	 Reason for the increased progesterone levels on days3 and 4 Fertilisation has taken place ✓✓ OR 				
		• Corpus luteum has been formed $\checkmark \checkmark$ (Any 1)	(2)			
	4.2.5	 Influence of oestrogen on LH Oestrogen stimulates the release of LH ✓ 	(1)			
	4.2.6	 The structure where prolactin is produced Pituitary gland/Hypophysis ✓ 	(1)			
4.3	Detectio	on of oestrus				
	The devi	ice to which each of the following statements apply:				
	4.3.1	Pedometer 🗸	(1)			
	4.3.2	Chin-ball markers ✓	(1)			
	4.3.3	Tail-chalking ✓	(1)			

4.4	Diagran	ns that represents a reproductive process				
	4.4.1	 Reproductive process Cloning/nuclear transfer ✓ 	(1)			
	4.4.2	 Definition of cloning A process through which an identical copy of the donor animal is produced ✓ from its nucleus ✓ 	(2)			
	4.4.3	 Description of stage B Removal of the nucleus ✓ 	(1)			
	4.4.4	 Aims of cloning Produce large numbers of genetically identical animals ✓ Production of offspring from a higher quality animal ✓ Preservation of superior genetics/characteristics ✓ Increase the population size of endangered species ✓ Achieve high quality meat and dairy products ✓ For medical purposes ✓ (Any 3) 	(3)			
4.5	Diagran	Diagram on oogenesis				
	4.5.1	Type of process Oogenesis/ovigenesis ✓	(1)			
	4.5.2	Type of cell division Mitosis ✓	(1)			
	4.5.3	Explanation for meiotic division To form haploid cells/gametes ✓	(1)			
	4.5.4	End products of division of oogenesis and spermatogenesis (a) Ova/egg cells ✓	(1)			
		(b) Spermatozoa/sperm cells ✓	(1)			
	4.5.5	The organ where the following are found (a) Testis ✓	(1)			
		(b) Ovary ✓	(1) [35]			
		TOTAL SECTION B: GRAND TOTAL:	105 150			