



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NASIONALE
SENIOR SERTIFIKAAT**

GRAAD 12

AGRS.1

LANDBOUWETENSKAPPE V1

FEBRUARIE/MAART 2017

PUNTE: 150

TYD: 2½ uur

Hierdie vraestel bestaan uit 16 bladsye.

OGGENDSESSIE



INSTRUKSIES EN INLIGTING

1. Hierdie vraestel bestaan uit TWEE afdelings, naamlik AFDELING A en AFDELING B.
2. Beantwoord AL die vrae in die ANTWOORDEBOEK.
3. Begin ELKE vraag op 'n NUWE bladsy.
4. Nommer die antwoorde korrek volgens die nommeringstelsel wat in hierdie vraestel gebruik is.
5. Jy mag 'n nieprogrammeerbare sakrekenaar gebruik.
6. Toon ALLE berekeninge, formules ingesluit, waar van toepassing.
7. Skryf netjies en leesbaar.



AFDELING A**VRAAG 1**

- 1.1 Verskeie opsies word as moontlike antwoorde op die volgende vrae gegee. Skryf die vraagnommer (1.1.1–1.1.10) neer, kies die antwoord en maak 'n kruisie (X) oor die letter (A–D) van jou keuse in die ANTWOORDEBOEK.

VOORBEELD:

1.1.11 A B C D

- 1.1.1 Die gedeelte in die maag van herkouers wat ooreenstem met die enkelvoudige maag van die vark:
- A Abomasum
 - B Omasum
 - C Rumen
 - D Retikulum
- 1.1.2 Meganiese vertering van voedsel by pluimvee vind plaas in die ...
- A krop.
 - B proventrikel.
 - C ventrikel.
 - D kloak.
- 1.1.3 ... het 'n alkaliese afskeiding met baie mukus in die duodenum wat dit teen suur chym beskerm.
- A Duodenale kliere
 - B Die Brunner-klier
 - C Die parotisklier
 - D Die klier van Lieberkühn
- 1.1.4 Gal word in die ... vervaardig en in die galblaas gestoor.
- A galbuisies
 - B lewer
 - C pankreas
 - D dunderm



- 1.1.5 Die beste beskrywing van eksterne parasiete op beeste:
- (i) Leef op die vel van beeste
 - (ii) Kan die vel beskadig
 - (iii) Kan toksiese stowwe produseer
 - (iv) Aangetref in die lewer
- Kies die KORREKTE kombinasie:
- A (i), (ii) en (iv)
 - B (i), (ii) en (iii)
 - C (ii), (iii) en (iv)
 - D (i), (iii) en (iv)
- 1.1.6 Die liggaamstemperatuur van plaasdiere is gewoonlik ... as die omgewingstemperatuur.
- A dieselfde
 - B in dieselfde verhouding
 - C hoër
 - D laer
- 1.1.7 Watter van die stellings hieronder oor 'n voerkraal-produksie-onderneming is WAAR?
- (i) Skaduwee en beskutting word aan diere gegee.
 - (ii) Alle weidings en voere word geoes en dan aan die diere gevoer.
 - (iii) Rotasieweiding word toegepas.
 - (iv) Hierdie onderneming is arbeids- en kapitaalintensief.
- Kies die KORREKTE kombinasie:
- A (i), (iii) en (iv)
 - B (ii), (iii) en (iv)
 - C (i), (ii) en (iii)
 - D (i), (ii) en (iv)
- 1.1.8 Die doel van inenting is hoofsaaklik om siektes onder plaasdiere te ...
- A beheer.
 - B behandel.
 - C verleng.
 - D voorkom.
- 1.1.9 'n Bakteriële geslagsiekte wat aanleiding gee tot die ergste graad van aborsie en tot onvrugbaarheid by koeie lei:
- A Antraks/Miltsiekte
 - B Trigemoniase
 - C Brusellose
 - D Besmetlike rinotrageïtis by beeste



1.1.10 Die aangebore defek waar die testes onderontwikkel is:

- A Hipoplasie
- B Impotensie
- C Kriptorkidisme
- D Hermafroditisme

(10 x 2) (20)

1.2 Dui aan of elk van die beskrywings in KOLOM B van toepassing is op **SLEGS A**, **SLEGS B**, **BEIDE A EN B** of **GEENEEN** van die items in KOLOM A nie. Skryf **slegs A**, **slegs B**, **beide A en B** of **geeneen** langs die vraagnommer (1.2.1–1.2.5) in die ANTWOORDEBOEK neer, byvoorbeeld 1.2.6 Slegs B.

KOLOM A			KOLOM B
1.2.1	A:	Hoë RP-inhoud	Voerkonsentraat geskik vir groei, melkproduksie en reproduksie
	B:	Lae veselinhoud	
1.2.2	A:	VV van 1 : 6	Voerverhouding geskik vir die vetmesting van plaasdiere
	B:	VV van 1 : 10	
1.2.3	A:	Lewerslak en hoenderluis	Voorbeelde van eksterne parasiete in braaikuikens
	B:	Bloubosluis en haarwurm	
1.2.4	A:	Onderhuids	Spuut diere tussen die lae van die vel in
	B:	Intradermaal	
1.2.5	A:	Natriumsitraat en penisillien	Verdunningsmiddels gemeng met semen
	B:	Eiergeel en water	

(5 x 2) (10)

1.3 Gee EEN woord/term vir elk van die volgende beskrywings. Skryf slegs die woord/term langs die vraagnommer (1.3.1–1.3.5) in die ANTWOORDEBOEK neer.

1.3.1 Die ensiem in die speeksel van varke wat vir die chemiese verandering van stysel na eenvoudige suikers verantwoordelik is

1.3.2 'n Boer wat op groot skaal produseer en winsgedrewe is

1.3.3 Die verskynsel waar 'n meerderwaardige koei met hormone behandel word om baie ova af te skei

1.3.4 'n Kragtige sametrekking van die uretra wat semen in die vagina van 'n koei deponeer

1.3.5 Die stadium van paring waartydens manlike en vroulike diere tot mekaar aangetrokke is

(5 x 2) (10)



- 1.4 Verander die **ONDERSTREEPTE WOORD(E)** in elk van die volgende stellings om dit **WAAR** te maak. Skryf slegs die antwoord langs die vraagnommer (1.4.1–1.4.5) in die **ANTWOORDEBOEK** neer.
- 1.4.1 Fundiese spiere voorkom dat voedsel vanaf die slukderm by die maag van 'n vark ingaan.
- 1.4.2 Vrylopend is 'n sisteem waar hoenders op die grond van 'n gebou aangehou word totdat hul ophou eiers lê.
- 1.4.3 Die dragtigheidstydperk in melkkoeie verwys na die tydperk tussen twee laktasies.
- 1.4.4 Dolly, die beroemde skaap, het sewe identiese lammers deur die proses van genetiese modifikasie voortgebring.
- 1.4.5 'n Spermatoosoon is die eindproduk van die oögenese-proses. (5 x 1) (5)

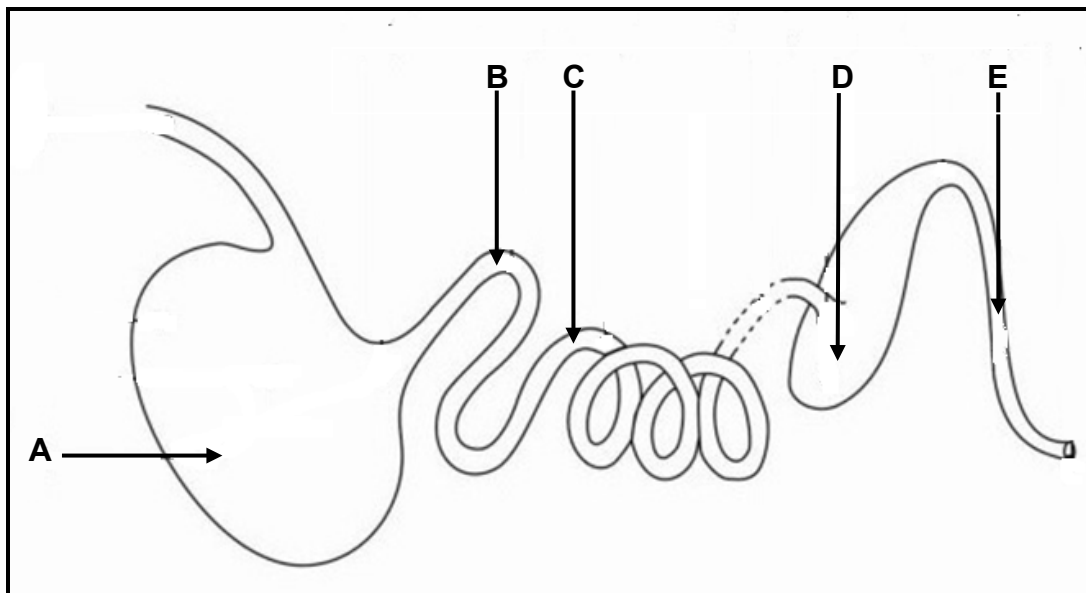
TOTAAL AFDELING A: 45



AFDELING B**VRAAG 2: DIEREVOEDING**

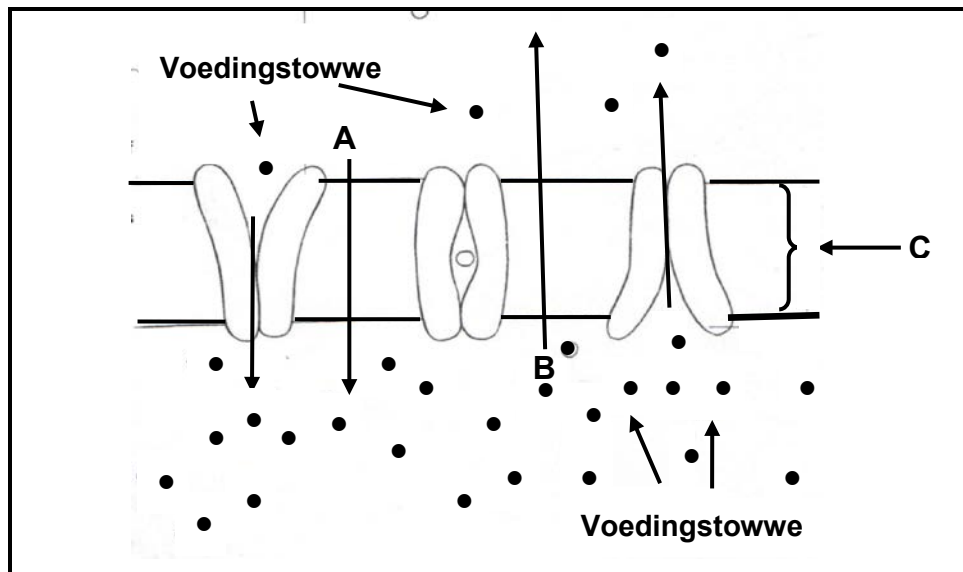
Begin hierdie vraag op 'n NUWE bladsy.

2.1 Die diagram hieronder verteenwoordig die spysverteringskanaal van 'n plaasdier.



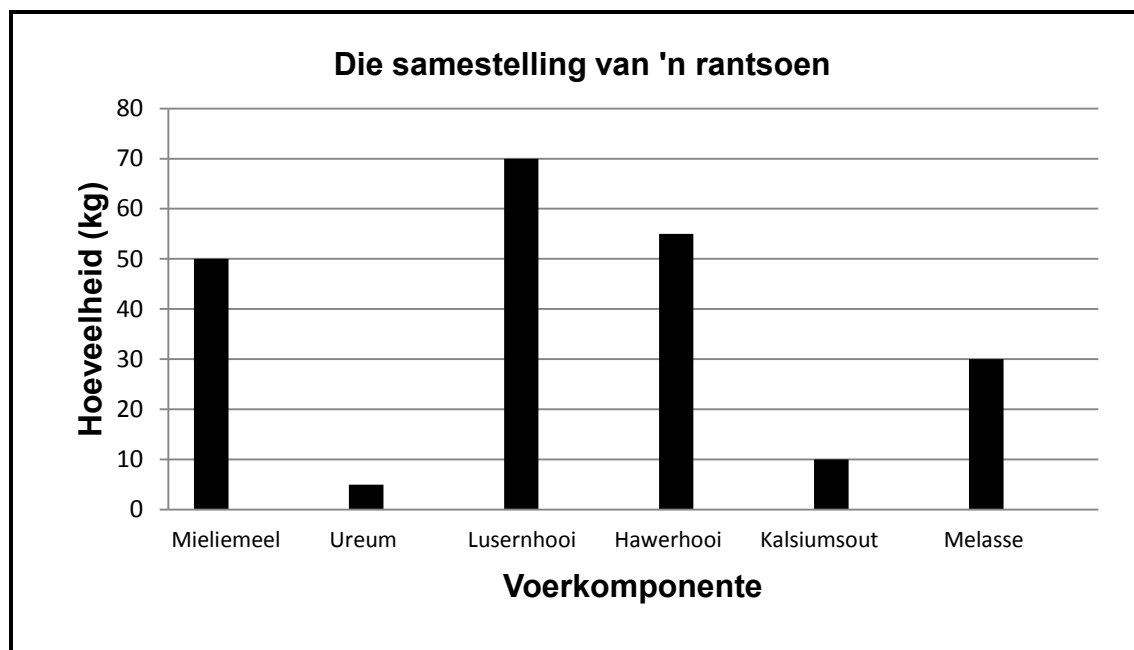
- 2.1.1 Noem die plaasdier wat deur die spysverteringskanaal in die diagram hierbo voorgestel word. (1)
- 2.1.2 Dui die belangrikheid van deel **A** en **C** aan in die vertering van voer van die plaasdier wat in VRAAG 2.1.1 geïdentifiseer is. (2)
- 2.1.3 Verduidelik meganiese vertering soos dit in die spysverteringskanaal van die plaasdier hierbo geïdentifiseer, plaasvind. (2)

2.2 Die diagram hieronder toon die absorpsie van voedingstowwe vanaf die dunderm na die bloedstroom.



- 2.2.1 Identifiseer die tipes voedingstofoordrag in **A** en **B**. (2)
- 2.2.2 Gee 'n rede vir die antwoord op VRAAG 2.2.1. (2)
- 2.2.3 Identifiseer struktuur **C**. (1)
- 2.2.4 Noem die voedingstof wat deur elk van die volgende geabsorbeer word:
- (a) Bloedhaarfate (1)
- (b) Kylvaat (1)

2.3 Die grafiek hieronder toon die voerkomponente van 'n rantsoen.



2.3.1 Identifiseer EEN voorbeeld van 'n energierike konsentraat in die grafiek hierbo. (1)

2.3.2 Identifiseer die voeraanvulling in die grafiek hierbo wat hoofsaaklik by lekke as 'n bron van energie gevoeg word. (1)

2.3.3 Lewer kommentaar, met 'n rede, oor die geskiktheid van ureum as 'n aanvulling vir varke. (2)

2.3.4 Tabuleer, met gebruik van die rantsoene in die grafiek hierbo:

(a) 'n Bron van natuurlike proteïen

(b) 'n Bron van NPN-proteïen (3)

2.4 Die tabel hieronder is 'n voervloeiogram van 'n plaas vir 'n tydperk van 120 dae in die winter.

TIPES DIERE	GETAL	LEWENDE MASSA (kg)	INNAME PER DIER (kg)	BEHOEFTE PER DAG (kg)	BEHOEFTE VIR 120 DAE (ton)	KOSTE R1 127 (per ton)
Koeie	60	500	10	600	A	R81 144,00
Bulle	3	750	15	45	5,4	R6 085,80
Kalwers	50	200	4	200	B	R27 048,00
TOTAAL	113					R114 277,80

2.4.1 Gebruik die data hierbo en bereken **A** en **B**. (4)

2.4.2 Gebruik die data hierbo en bepaal die gemiddelde koste om EEN dier vir EEN dag te voer. (3)

2.5 Die tabel hieronder toon die samestelling van twee dierevoere.

VOER A	VOER B
80% TVV	70% TVV
10% VP	12% VP
VV = 1 : 7	...

2.5.1 Gebruik 'n formule om die voedingsverhouding (VV) van VOER B te bereken. (3)

2.5.2 VOER A kan nie vir melkproduserende koeie aanbeveel word nie. Verwys na die voedingsverhouding hierbo om hierdie stelling te regverdig. (2)

2.6 Die tabel hieronder toon inligting oor dierevoere.

PRODUK	RUPROTEÏENPERSENTASIE (%)
Hawermeel	9
Sonneblom-oliekoekmeel	38
Finale rantsoen	14

Gebruik die Pearson-vierkantmetode om die verhouding van die twee voere wat hierbo genoem is, te bereken. (4)

[35]



VRAAG 3: DIEREPRODUKSIE, BESKERMING EN BEHEER

Begin hierdie vraag op 'n NUWE bladsy.

3.1 Diereproduksie-ondernemings behoort al die natuurlike hulpbronne wat beskikbaar is, optimaal te gebruik om produksie te maksimaliseer.

In die meeste ekstensiewe diereproduksie-ondernemings eet herkouers natuurlike veld as hul hoofbron van voedingstowwe. Ongelukkig kan hierdie praktyk tot uitbuiting lei wat nie vir diere en die omgewing voordelig is nie.

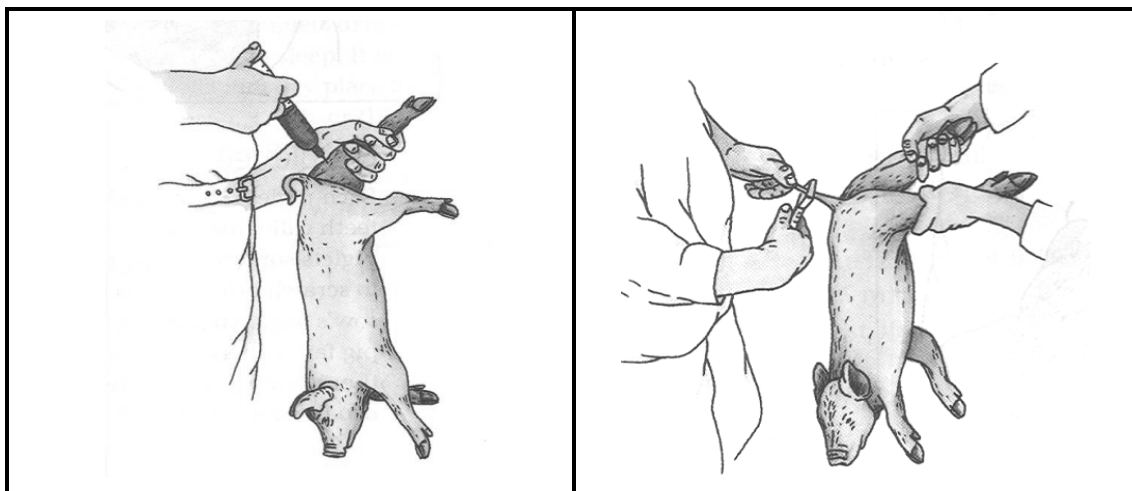
Verduidelik hoe ELK van die volgende op 'n ekstensiewe produksiestelsel inwerk:

3.1.1 Natuurlike hulpbronne (2)

3.1.2 Voeding (2)

3.1.3 Uitbuitende praktyke (2)

3.2 Die prente hieronder toon bestuurspraktyke wat op varkies toegepas word.

**A****B**

3.2.1 Identifiseer bestuurspraktyk **A** en **B** in die prente hierbo. (2)

3.2.2 Gee 'n rede vir bestuurspraktyk **A** en **B**. (2)

3.2.3 Verwys na **A** en noem die mineraal wat gewoonlik aan klein varkies gegee word. (1)

3.2.4 Gee TWEE redes om die antwoord op VRAAG 3.2.3 te motiveer. (2)

3.3

Skuiling is belangrik vir diereproduksie aangesien dit die effek van uiterste omgewingstoestande verminder. Dit voorkom dat die liggaamstemperatuur tot onder die laagste kritieke temperatuur daal.

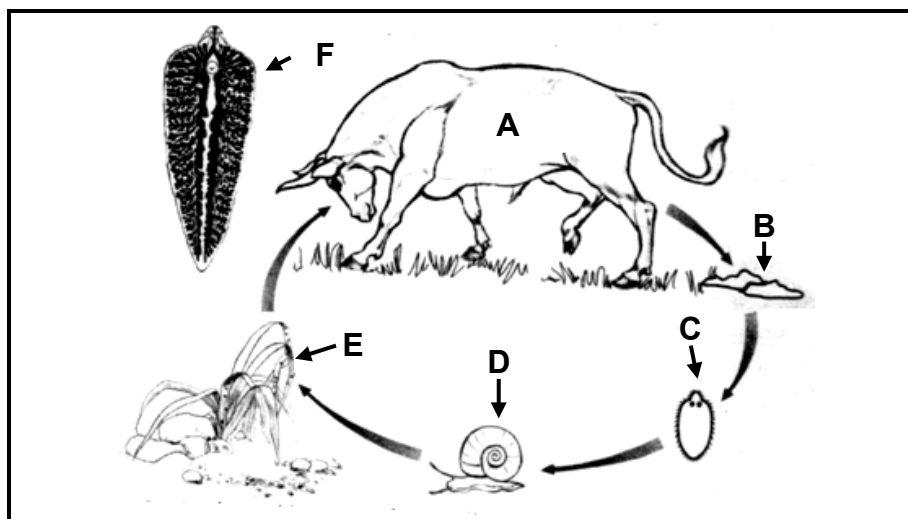
Die tabel hieronder toon die laagste kritieke liggaamstemperature van verskillende plaasdiere.

PLAASDIER	LAAGSTE KRITIEKE TEMPERATUUR (°C)
Melkkoeie	5
Klein varkies	30
Sôe	10
Dagoudkuikens	20
Lêhenne	10
Spekvarke	15

- 3.3.1 Gebruik die data in die tabel hierbo en teken 'n staafgrafiek om die laagste kritieke temperatuur van die verskillende plaasdiere aan te dui. (6)
- 3.3.2 Watter plaasdiere in die tabel hierbo sal die voer NIE doeltreffend by 'n omgewingstemperatuur van 24 °C kan benut NIE? (1)
- 3.3.3 Melkkoeie kan melk produseer selfs al is die omgewingstemperatuur 6 °C. Motiveer hierdie stelling. (1)

3.4

Die illustrasie hieronder stel die lewensiklus voor van 'n parasiet wat plaasdiere affekteer.



- 3.4.1 Klassifiseer en noem die parasiet wat hierbo voorgestel word. (2)
- 3.4.2 Identifiseer die letter (A–F) wat ELK van die volgende voorstel:
 - (a) Tussengasheer (1)
 - (b) Larwes wat uit eiers uitbroei (1)
- 3.4.3 Stel EEN voorsorgmaatreël voor wat 'n boer kan tref om te verseker dat diere nie met hierdie parasiet besmet word nie. (1)
- 3.4.4 Noem DRIE ekonomiese implikasies van hierdie parasiet vir boere. (3)

3.5

Behuising vir kuikens word hoofsaaklik gebruik om hulle teen predatore te beskerm en om 'n omgewing vir groei en ontwikkeling te skep. Aspekte soos oriëntasie, die tipe muur en dakmateriaal, behoort oorweeg te word. Toerusting en gereedskap is ook belangrik.

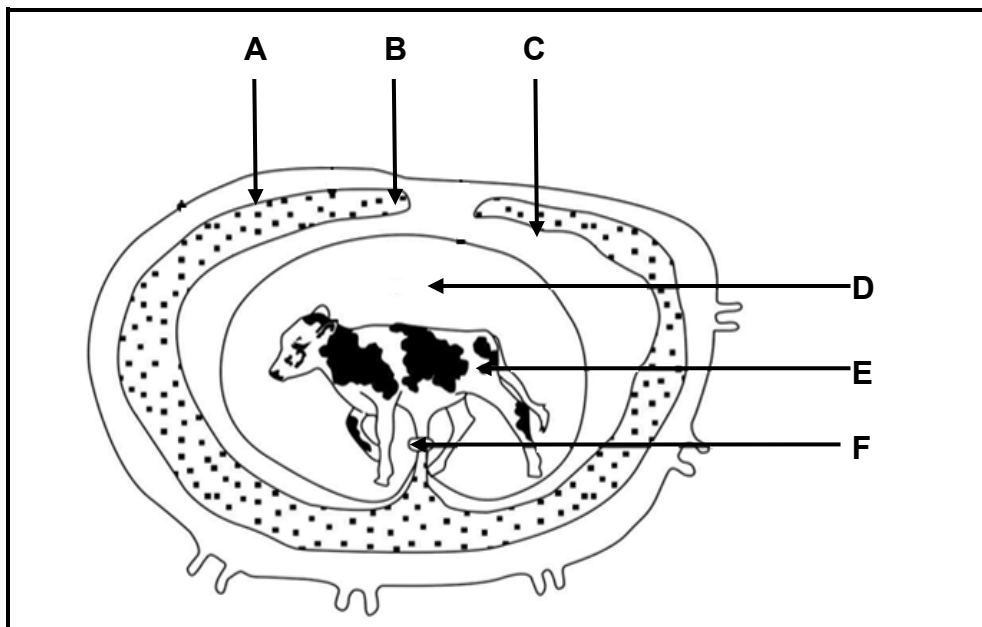
- 3.5.1 Identifiseer TWEE doelwitte van behuising vir kuikens in die uittreksel hierbo. (2)
- 3.5.2 Noem TWEE faktore om in gedagte te hou wanneer behuising vir kuikens gebou word. (2)
- 3.5.3 Noem TWEE voorbeelde van toerusting in pluimveebehuising. (2)
- [35]**



VRAAG 4: DIEREREPRODUKSIE

Begin hierdie vraag op 'n NUWE bladsy.

4.1 Die diagram hieronder toon die embrio en fetusontwikkeling in plaasdiere.



4.1.1 Identifiseer struktuur **B**, **E** en **F**. (3)

4.1.2 Noem die volgende oor struktuur **D**:

(a) EEN funksie (1)

(b) EEN bestanddeel (1)

(c) Plek waar dit aangetref word (1)

4.1.3 Dui die tyd (in maande) aan waartydens die melkboer met 'n rektale swangerskapondersoektoets die teenwoordigheid van 'n fetus sal kan bepaal. (1)

4.2 Hormone speel 'n belangrike rol in die reproduksiesiklus van plaasdiere.

4.2.1 Verduidelik die term *hormoon*. (2)

4.2.2 Gee die hoof funksie vir ELK van die volgende hormone:

(a) Testosteron (1)

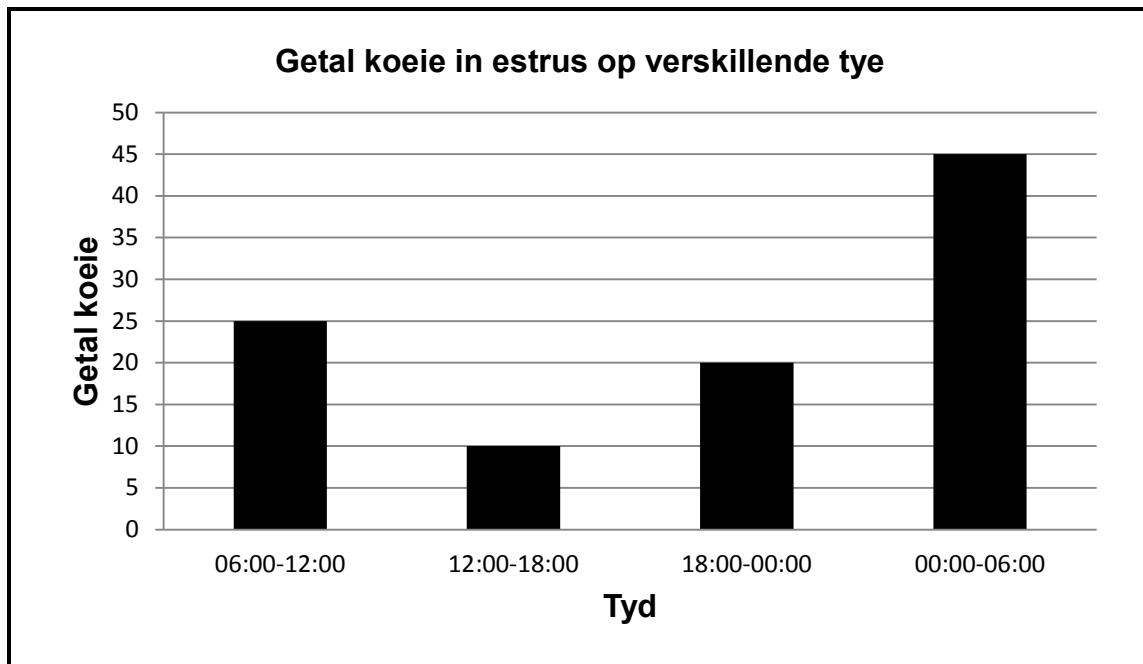
(b) Luteïniserende hormoon (LH) (1)

(c) Estrogeen (1)

4.2.3 Noem die hormoon verantwoordelik vir:

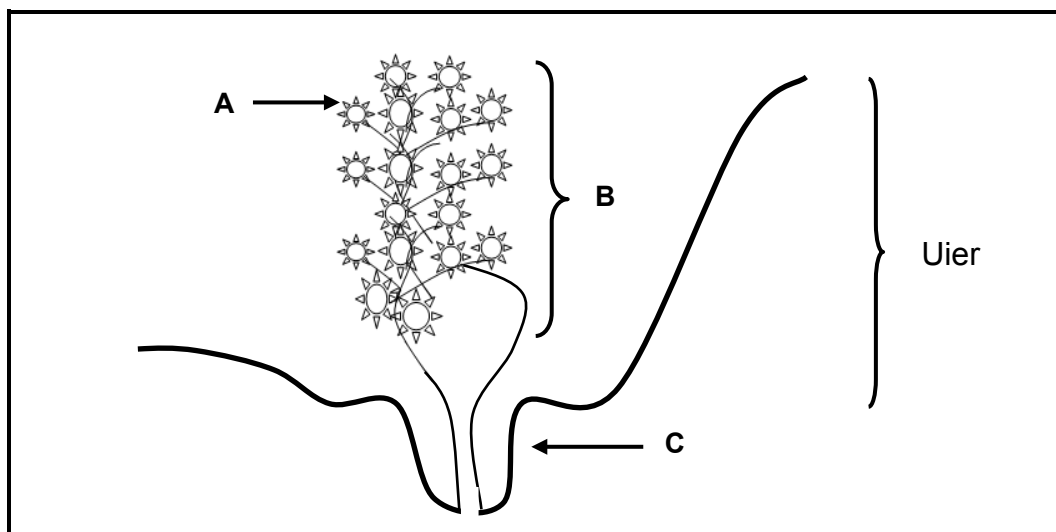
- (a) Onderhoud van die corpus luteum (1)
- (b) Groei en ontwikkeling van die Graafse follikel (1)

4.3 Die grafiek hieronder toon inligting oor die estrussiklus van melkkoeie.



- 4.3.1 Bepaal die getal koeie wat van 12:00 tot 18:00 in estrus is. (1)
- 4.3.2 Dui die tyd aan wanneer 20 koeie in estrus sal wees. (1)
- 4.3.3 Verwys na die grafiek en voorspel die tendens van die aantal koeie wat van 12:00 tot 06:00 in estrus is. (1)
- 4.3.4 Bereken die getal koeie wat van 18:00 tot 06:00 in estrus is. (2)
- 4.3.5 Verwys na die grafiek hierbo en stel die beste tyd voor om die koeie te insemineer. (1)
- 4.3.6 Gee EEN rede vir die antwoord op VRAAG 4.3.5. (1)

4.4 Die diagram hieronder stel die uier van 'n melkkoei voor.



4.4.1 Identifiseer deel **A**, **B** en **C**. (3)

4.4.2 Definieer die term *laktasie* in melkkoeie. (2)

4.4.3 Vergelyk die verandering in melkproduksie en bottervetproduksie gedurende EEN laktasietydperk. (2)

4.5

Moeilike geboortes vereis meer arbeid en aandag. Dit kan daartoe lei dat die plasenta in die koei vassit/agterbly en die dood van beide die kalf en die koei tot gevolg hê. Dit is 'n oorerflike eienskap en kom meer dikwels by verse en bulkalwers voor. Dit kan deur goeie bestuur reggestel word.

4.5.1 Gee 'n toepaslike term wat algemeen vir *moeilike geboortes* gebruik word. (1)

4.5.2 Verduidelik die rede vir moeilike geboortes by verse. (2)

4.5.3 Dui TWEE bestuursmaatreëls aan om die moontlikheid van moeilike geboortes te verminder. (2)

4.5.4 Definieer die term *vassit/agterbly van die plasenta*. (2)

[35]

TOTAAL AFDELING B: 105
GROOTTOTAAL: 150





TOTAL SECTION B: 105
 GRAND TOTAL: 150

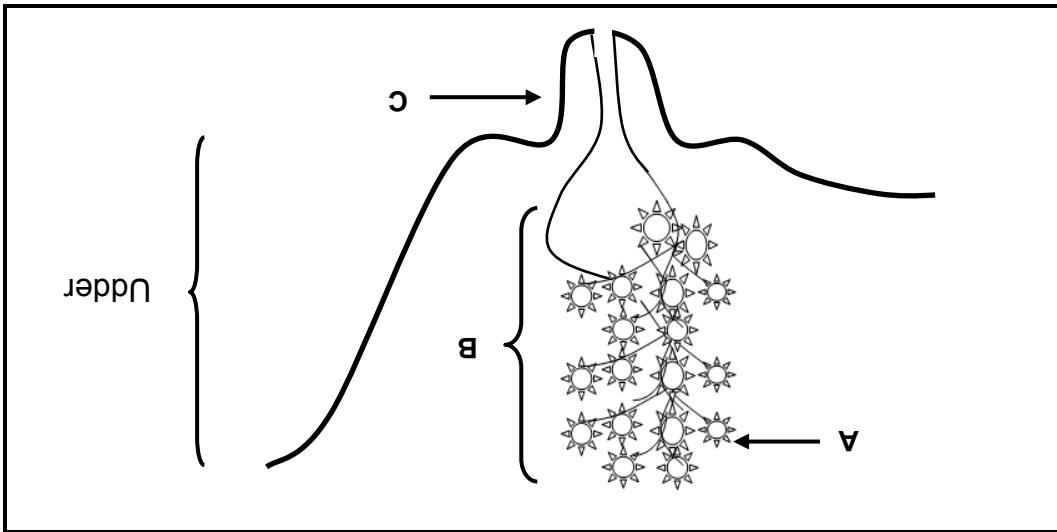
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- 4.5.1 Give an appropriate term commonly used for *difficult births*. (1)
- 4.5.2 Explain the reason for difficult births in heifers. (2)
- 4.5.3 Indicate TWO managerial measures to reduce the probability of difficult births. (2)
- 4.5.4 Define the term *placenta retention*. (2)

Difficult births require more labour and attention. It may result in placenta retention and the death of both the cow and the calf. It is a heritable characteristic, occurring more frequently in heifers and bull calves. It can be corrected by means of proper management.

4.5

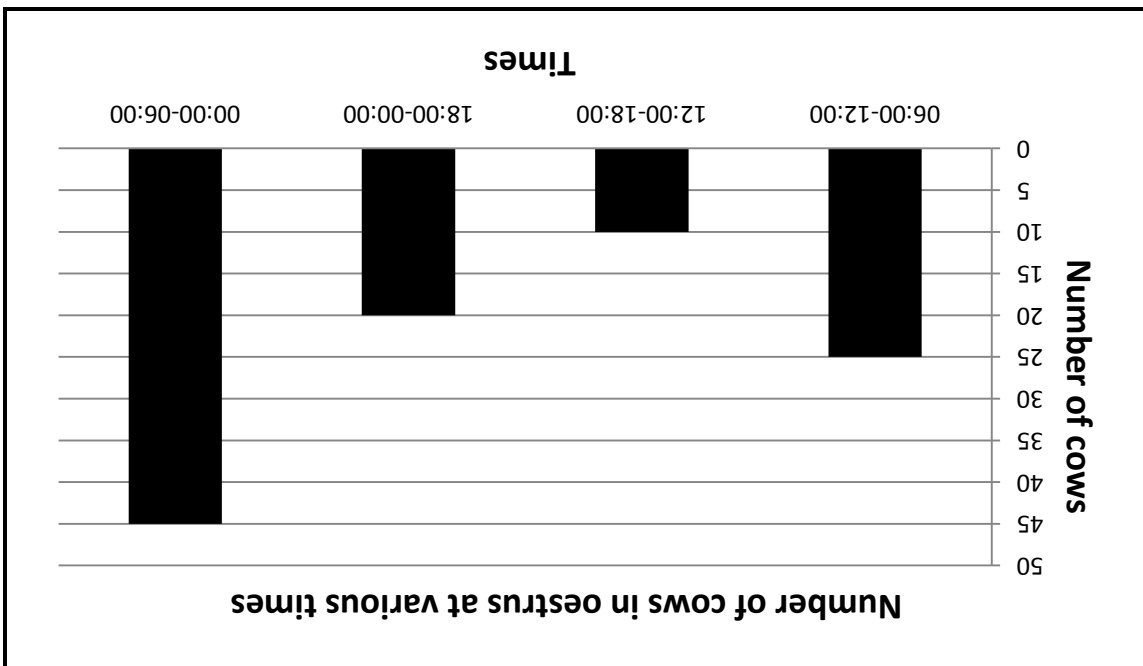
- 4.4.1 Identify parts A, B and C. (3)
- 4.4.2 Define the term *lactation* in dairy cows. (2)
- 4.4.3 Compare the change in milk production and butterfat production during ONE lactation period. (2)



4.4 The diagram below represents the udder of a dairy cow.

4.2.3 Name the hormone responsible for:
 (a) Maintaining the corpus luteum (1)
 (b) Growth and development of the Graafian follicle (1)

4.3 The graph below shows information on the oestrus cycle of dairy cattle.



4.3.1 Determine the number of cows in oestrus from 12:00 to 18:00. (1)

4.3.2 Indicate the time during which 20 cows will be in oestrus. (1)

4.3.3 Refer to the graph and predict the trend of the number of cows in oestrus from 12:00 to 06:00. (1)

4.3.4 Calculate the number of cows in oestrus from 18:00 to 06:00. (2)

4.3.5 Refer to the graph above and suggest the best time to inseminate the cows. (1)

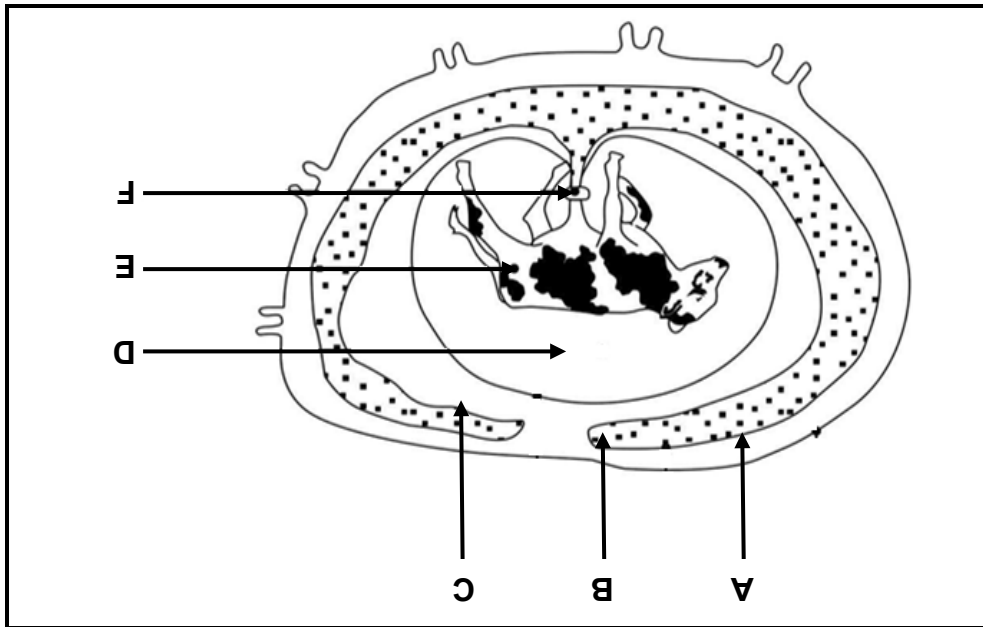
4.3.6 Give ONE reason for the answer to QUESTION 4.3.5. (1)



QUESTION 4: ANIMAL REPRODUCTION

Start this question on a NEW page.

4.1 The diagram below shows the embryo and foetus development in farm animals.



4.1.1 Identify structures **B**, **E** and **F**. (3)

4.1.2 State the following about structure **D**:

(a) ONE function (1)

(b) ONE constituent (1)

(c) Place where it is found (1)

4.1.3 Indicate the time (in months) during which dairy farmers should be able to detect the presence of a foetus with a rectal pregnancy diagnosis test. (1)

4.2 Hormones play an important role in the reproduction cycle of farm animals.

4.2.1 Explain the term *hormone*. (2)

4.2.2 Give the main function of EACH of the following hormones:

(a) Testosterone (1)

(b) Luteinising hormone (LH) (1)

(c) Oestrogen (1)





3.5

<p>The chicken house is mainly used to protect chicken from predators and to create an environment for growth and development. Aspects such as orientation, the types of walls and roofing, should be considered. Equipment and tools are also important.</p>

- 3.5.1 Identify TWO purposes of chicken housing in the extract above. (2)
- 3.5.2 State TWO factors to consider when building a chicken house. (2)
- 3.5.3 Name TWO examples of equipment in a poultry house. (2)

[35]

3.3

Shelter is important for animal production because it reduces the effect of extreme environmental conditions. It prevents the body temperature from dropping below the lowest critical temperature.

The table below shows the lowest critical temperatures of different farm animals.

FARM ANIMAL	LOWEST CRITICAL TEMPERATURE (°C)
Dairy cows	5
Piglets	30
Sows	10
Day-old chicks	20
Layers	10
Baconers	15

3.3.1

Use the data in the table above and draw a bar graph to indicate the lowest critical temperature of the different farm animals.

(6)

3.3.2

Which farm animal in the table above will NOT utilise the feed efficiently if the environmental temperature is at 24 °C?

(1)

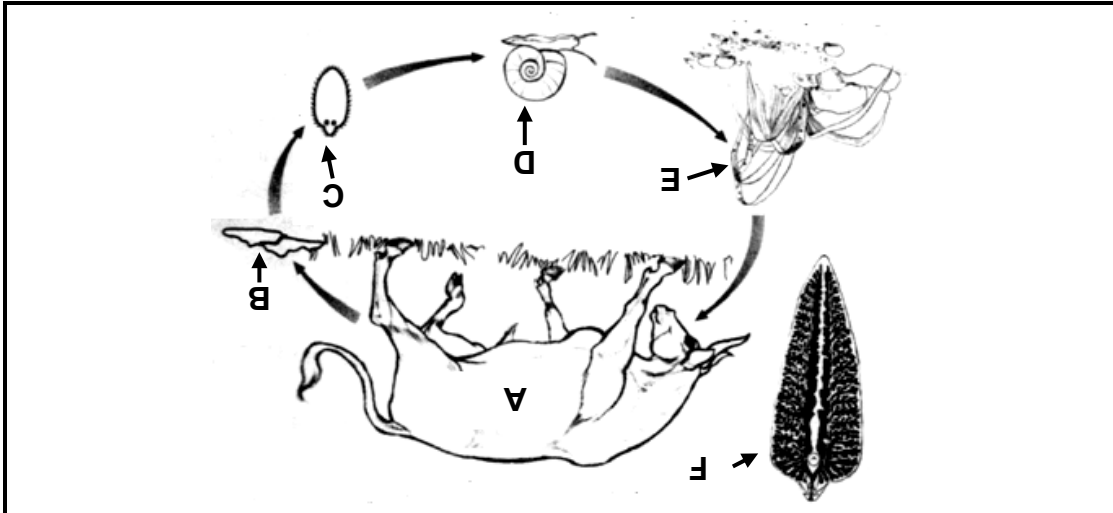
3.3.3

Dairy cows can produce milk even when environmental temperatures are at 6 °C. Substantiate this statement.

(1)

3.4

The illustration below represents the life cycle of a parasite that affects farm animals.



3.4.1

Classify and name the parasite represented above.

(2)

3.4.2

Identify the letter (A–F) representing EACH of the following:

(1)

(a) Intermediate host

(1)

(b) Eggs hatch into larva

3.4.3

Suggest ONE precautionary measure a farmer can take to ensure that animals are not infected by this parasite.

(1)

3.4.4

State THREE economic implications of this parasite for the farmer.

(3)



QUESTION 3: ANIMAL PRODUCTION, PROTECTION AND CONTROL

Start this question on a NEW page.

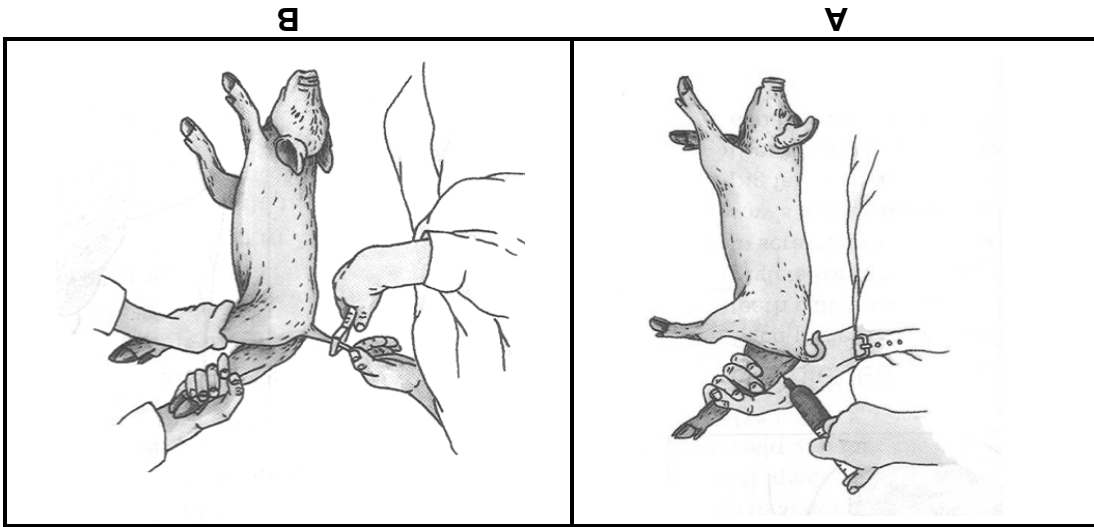
3.1 Animal production enterprises should make optimal use of all the natural resources available to maximise production.
In most of the extensive animal production enterprises, ruminants consume natural vegetation as their major source of nutrients. Unfortunately this practice may result in exploitation that is not beneficial to animals and the environment.

Explain how EACH of the following impacts on an extensive production system:

- 3.1.1 Natural resources (2)
- 3.1.2 Feeding (2)
- 3.1.3 Exploitative practices (2)

3.2

The pictures below indicate management practices applied to piglets.



- 3.2.1 Identify management practices **A** and **B** in the pictures above. (2)
- 3.2.2 Give a reason for management practice **A** and **B**. (2)
- 3.2.3 Refer to **A** and name the mineral that is usually given to piglets. (1)
- 3.2.4 Give TWO reasons to motivate the answer to QUESTION 3.2.3. (2)





2.6

The table below shows information regarding animal feeds. Use the Pearson square method to calculate the ratio of the two feeds mentioned above.

PRODUCT	CRUDE PROTEIN PERCENTAGE (%)
Oats meal	9
Sunflower oil cake meal	38
Final ration	14

The table below shows the composition of two animal feeds.

FEED A	FEED B
80% TDN	70% TDN
10% DP	12% DP
NR = 1 : 7	...

2.5

2.5.1 Use a formula to calculate the nutritive ratio (NR) of FEED B.
 2.5.2 FEED A cannot be recommended for milk-producing cows. Refer to the nutritive ratio above to justify this statement.

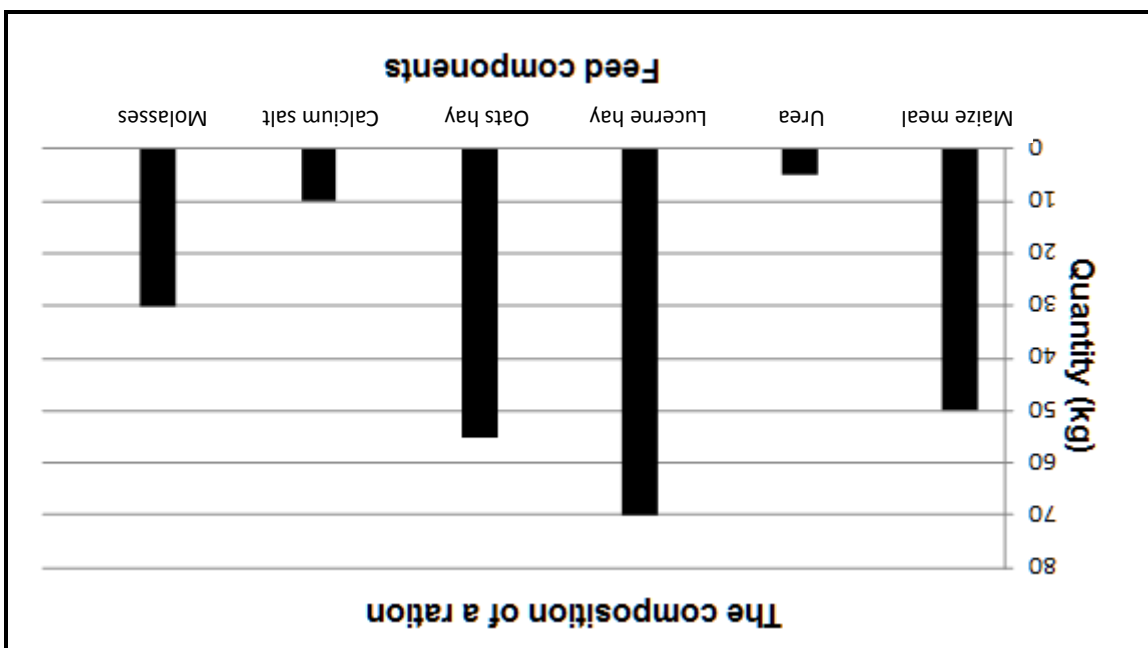
(2)

(3)

(4)
[35]

2.3

The graph below shows the feed components of a ration.



2.3.1 Identify ONE example of an energy-rich concentrate in the graph above. (1)

2.3.2 Identify the feed supplement that is mainly added to licks as a source of energy in the graph above. (1)

2.3.3 Comment, with a reason, on the suitability of urea as a supplement for pigs. (2)

2.3.4 Tabulate, using the rations in the graph above:
 (a) A source of natural protein
 (b) A source of NPN protein (3)

2.4

The table below is a farm fodder flow programme for a period of 120 days during winter.

TYPES OF ANIMALS	QUANTITY	LIVE MASS (kg)	INTAKE PER ANIMAL (kg)	REQUIREMENT PER DAY (kg)	REQUIREMENT FOR 120 DAYS (tons)	COST (per ton)
Cows	60	500	10	600	A	R81 144,00
Bulls	3	750	15	45	5,4	R6 085,80
Calves	50	200	4	200	B	R27 048,00
TOTAL	113					R114 277,80

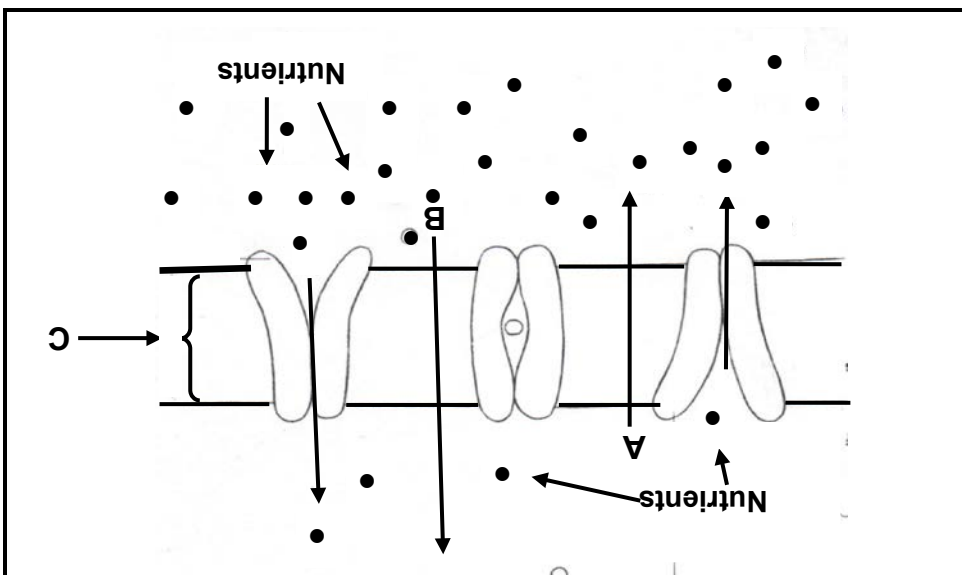
2.4.1 Use the data above to calculate **A** and **B**. (4)

2.4.2 Use the data above and determine the average cost of feeding ONE animal for ONE day. (3)



2.2

The diagram below shows the absorption of nutrients from the small intestines into the blood circulatory system.



- 2.2.1 Identify the types of nutrient transport in **A** and **B**. (2)
- 2.2.2 Give a reason for the answer to QUESTION 2.2.1. (2)
- 2.2.3 Identify structure **C**. (1)
- 2.2.4 Name the nutrient that is absorbed through each of the following: (1)
- (a) Blood capillaries (1)
- (b) Lacteal (1)

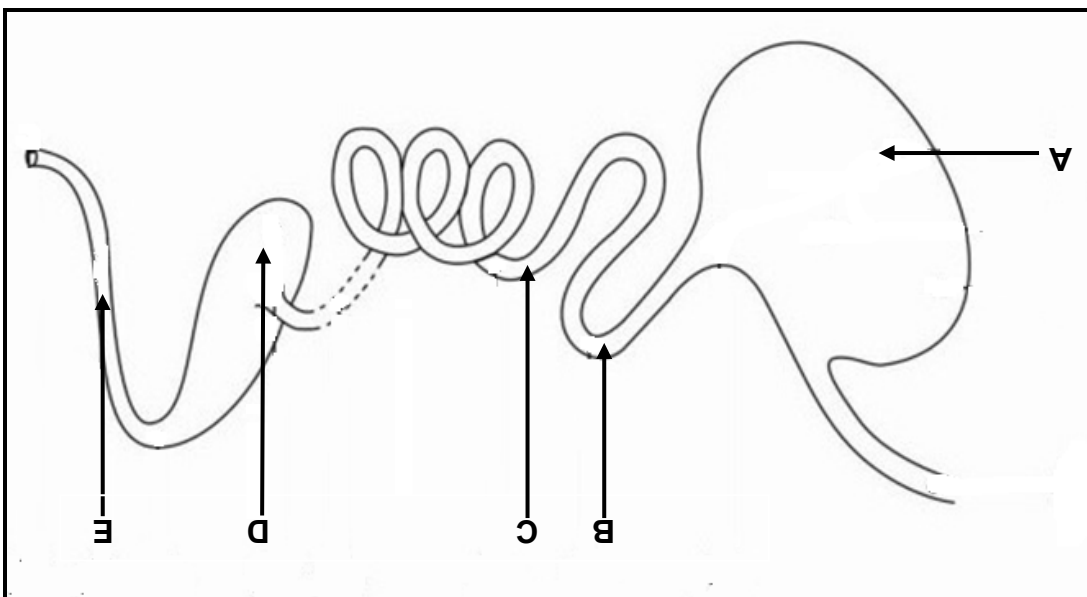


SECTION B

QUESTION 2: ANIMAL NUTRITION

Start this question on a NEW page.

2.1 The diagram below represents the alimentary canal of a farm animal.



- 2.1.1 Name the farm animal represented by the alimentary canal in the diagram above. (1)
- 2.1.2 Indicate the importance of parts **A** and **C** in the digestion of feed of the farm animal identified in QUESTION 2.1.1. (2)
- 2.1.3 Explain mechanical digestion as it occurs in the alimentary canal of the farm animal identified above. (2)



1.4 Change the UNDERLINED WORD(S) in each of the following statements to make them TRUE. Write only the answer next to the question number (1.4.1-1.4.5) in the ANSWER BOOK.

1.4.1 Fundic muscles prevent food from the oesophagus from entering the stomach of a pig.

1.4.2 Free-range is a system where chickens are kept on the floor of a house until they stop laying eggs.

1.4.3 The gestation period in dairy cattle refers to the period between two lactations.

1.4.4 Dolly, the famous sheep, produced seven identical lambs through the process of genetic modification.

1.4.5 A spermatozoon is the end product of the process of oogenesis.

(5) (5 x 1)

45 TOTAL SECTION A:



1.1.10 The congenital defect where the testes are underdeveloped:

- A Hypoplasia
- B Impotence
- C Cryptorchidism
- D Hermaphroditism

(20) (10 x 2)

1.2 Indicate whether each of the descriptions in COLUMN B applies to **A ONLY**, **B ONLY**, **BOTH A AND B** or **NONE** of the items in COLUMN A. Write **A ONLY**, **B ONLY**, **BOTH A AND B** or **none** next to the question number (1.2.1–1.2.5) in the ANSWER BOOK, for example 1.2.6 B only.

COLUMN A		COLUMN B	
1.2.1	A: High DP content	Concentrate feed suitable for growth, milk production and reproduction	of farm animals
	B: Low fibre content		
1.2.2	A: NR of 1 : 6	Feed ratio suitable for the fattening	Examples of external parasites in broilers
	B: NR of 1 : 10		
1.2.3	A: Liver fluke and chicken lice	Injecting animals between the layers of the skin	Dilutants mixed with semen
	B: Blue ticks and wireworm		
1.2.4	A: Subcutaneous	Intradermal	Sodium citrate and penicillin
	B: Intradermal		
1.2.5	A: Sodium citrate and penicillin	Egg yolk and water	
	B: Egg yolk and water		

(10) (5 x 2)

1.3 Give ONE word/term for each of the following descriptions. Write only the word/term next to the question number (1.3.1–1.3.5) in the ANSWER BOOK.

- 1.3.1 The enzyme in the saliva of pigs responsible for the chemical change from starch to simple sugars
- 1.3.2 A farmer who produces on a large scale and is profit-orientated
- 1.3.3 The phenomenon where a superior cow is treated with hormones to produce many ova
- 1.3.4 A powerful contraction of the urethra that deposits semen into the vagina of the cow
- 1.3.5 The stage of mating where male and female animals are attracted to one another

(10)



1.1.5 The best description of external parasites on cattle:

- (i) Live on the skin of cattle
- (ii) Can damage the skin
- (iii) Can produce toxins
- (iv) Found in the liver

Choose the CORRECT combination:

- A (i), (ii) and (iv)
- B (i), (ii) and (iii)
- C (ii), (iii) and (iv)
- D (i), (iii) and (iv)

1.1.6 The body temperature of farm animals is usually ... the environmental temperature.

- A the same as
- B in the same ratio as
- C higher than
- D lower than

1.1.7 Which of the statements below with regard to a feedlot production enterprise are TRUE?

- (i) Shade and shelter are provided to animals.
- (ii) All pastures and feeds are harvested and then fed to the animals.
- (iii) Rotational grazing is practised.
- (iv) This enterprise is labour and capital intensive.

Choose the CORRECT combination:

- A (i), (iii) and (iv)
- B (ii), (iii) and (iv)
- C (i), (ii) and (iii)
- D (i), (ii) and (iv)

1.1.8 The purpose of vaccination is mainly to ... diseases in farm animals.

- A control
- B treat
- C prolong
- D prevent

1.1.9 A bacterial venereal infection causing the worst cases of abortion which results in infertility in cows:

- A Anthrax
- B Trichomoniasis
- C Brucellosis
- D Infectious bovine rhinotracheitis



SECTION A

QUESTION 1

1.1 Various options are provided as possible answers to the following questions. Write down the question number (1.1.1–1.1.10), choose the answer and make a cross (X) over the letter (A–D) of your choice in the ANSWER BOOK.

EXAMPLE:

1.1.11	A	B	C	B
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1.1.1 The compartment of the ruminant stomach that corresponds to the simple stomach of the pig:

- A Abomasum
- B Omasum
- C Rumen
- D Reticulum

1.1.2 Mechanical digestion of food in a fowl takes place in the ...

- A crop.
- B proventriculus.
- C ventriculus.
- D cloaca.

1.1.3 ... secrete(s) an alkaline secretion rich in mucus in the duodenum that protects it from the acidic chyme.

- A Duodenal glands
- B Brunner's gland
- C The parotid gland
- D The gland of Lieberkühn

1.1.4 Bile is produced in the ... and then stored in the gall bladder.

- A bile ducts
- B liver
- C pancreas
- D small intestine





INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections, namely SECTION A and SECTION B.
2. Answer ALL the questions in the ANSWER BOOK.
3. Start EACH question on a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. You may use a non-programmable calculator.
6. Show ALL calculations, including formulae, where applicable.
7. Write neatly and legibly.



MORNING SESSION

This question paper consists of 16 pages.

TIME: 2½ hours

MARKS: 150

AGRS.1
AGRICULTURAL SCIENCES P1
FEBRUARY/MARCH 2017

GRADE 12

NATIONAL
SENIOR CERTIFICATE



Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

basic education