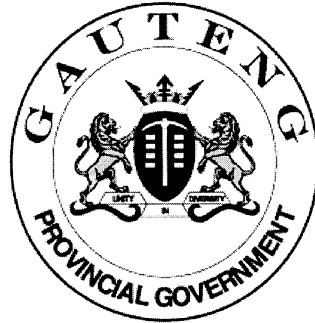


**SENIOR CERTIFICATE
EXAMINATION
SENIORSERTIFIKAAT-EKSAMEN**



**FEBRUARY / FEBRUARIE
MARCH / MAART**

2005

AGRICULTURAL SCIENCE

**LANDBOU-
WETENSKAP**

HG

802-1/0

AGRICULTURAL SCIENCE HG

**12 pages
12 bladsye**



X05



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GAUTENGSE DEPARTEMENT VAN ONDERWYS
SENIORSERTIFIKAAT-EKSAMEN

LANDBOUWETENSKAP HG

TYD: 3 uur

PUNTE: 400

BENODIGHEDE:

- 'n Sakrekenaar

INSTRUKSIES:

- Beantwoord ALLE vrae.
- Beantwoord Vraag 1A op die **antwoordblad** op die **binneste omslag** van die **antwoordboek**.
- Skryf asseblief leesbaar.
- Nommer jou antwoord streng volgens die nommerstelsel wat in hierdie vraestel gebruik word.

AFDELING A

VRAAG 1A
MEERVOUDIGE KEUSEVRAE

Verskeie moontlike antwoorde word vir Vrae 1.1 tot 1.30 verstrek, waarvan slegs EEN korrek is. Dui die korrekte antwoord van jou keuse aan deur 'n kruisie (X) oor die toepaslike letter langs die ooreenstemmende nommer op die **antwoordblad** op die **binneste omslag** van die **antwoordboek** te maak, bv:

A	B	C	D
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1.1 'n Nadeel van koöperatiewe bemerking is _____.

- A. fluktuerende pryse
- B. verpligte lidmaatskap
- C. hoë bemerkingskoste
- D. dat boere minder mag het

1.2 'n Voorbeeld van bedryfskapitaal is _____.

- A. trekkers
- B. damme
- C. omheinings
- D. kunsmis

GAUTENG DEPARTMENT OF EDUCATION
SENIOR CERTIFICATE EXAMINATION

AGRICULTURAL SCIENCE HG

TIME: 3 hours

MARKS: 400

REQUIREMENTS:

- Calculator

INSTRUCTIONS:

- Answer ALL questions.
- Answer Question 1A on the **answer sheet** on the **inside cover** of the **answer book**.
- Please write legibly.
- Number your answers in strict accordance with the numbering system used in this paper.

SECTION A

QUESTION 1A
MULTIPLE-CHOICE QUESTIONS

A number of possible answers are given to each of Questions 1.1 to 1.30 of which only ONE is correct. Indicate the correct answer by making a cross (X) over the appropriate letter next to the corresponding number on the **answer sheet** on the **inside cover** of your **answer book**, e.g.

A	B	C	D
---	---	---	---

1.1 A disadvantage of co-operative marketing is _____.

- A. fluctuating prices
- B. compulsory membership
- C. high marketing costs
- D. that farmers have less power

1.2 An example of floating capital is _____.

- A. tractors
- B. dams
- C. fences
- D. fertilizer

- 1.3 Watter een van die volgende is **nie** 'n ekonomiese eienskap van grond nie?
- A. Duursaamheid
 - B. Besikbaarheid
 - C. Vernietigbaarheid
 - D. Onderhewig aan die wet van dalende meeropbrengs
- 1.4 ATP _____.
- A. het meer energie as ADP
 - B. het minder energie as ADP
 - C. het geen energie nie
 - D. word tot ADP omgeskakel in die ligfase
- 1.5 Die kans is goed dat grond brak sal wees as daar 'n hoë konsentrasie _____ in die grond is.
- A. waterstofione
 - B. kalsiumione
 - C. natriumione
 - D. kaliumione
- 1.6 Die beste metode om aarbeie te reproduseer is deur gebruik te maak van _____.
- A. knolle
 - B. uitlopers
 - C. bolle
 - D. risome
- 1.7 Die afkorting NAV by waterkwaliteit verwys na die _____.
- A. swawel/suurheid-verhouding
 - B. natriumabsorpsie-verhouding
 - C. grondlug-herabsorpsie
 - D. soutabsorpsie-verhouding
- 1.8 Savanna word altyd geassosieer met _____.
- A. grasveld
 - B. vetplante
 - C. die Karoo
 - D. yl grasbedekking
- 1.9 'n Verdampingspan word geassosieer met _____.
- A. plantvoeding
 - B. waterbegroting
 - C. besproeiingskedulering
 - D. wegsyfering van water

- 1.3 Which one of the following is **not** an economic characteristic of soil?
- A. Durability
 - B. Availability
 - C. Destructibility
 - D. Subject to the law of diminishing returns
- 1.4 ATP _____.
- A. has more energy than ADP
 - B. has less energy than ADP
 - C. has no energy
 - D. is converted to ADP in the light phase
- 1.5 The possibility of brackishness is great when there is a high concentration of _____ in the soil.
- A. hydrogen ions
 - B. calcium ions
 - C. sodium ions
 - D. potassium ions
- 1.6 The best method by which to reproduce strawberries is by making use of _____.
- A. tubers
 - B. runners
 - C. bulbs
 - D. rhizomes
- 1.7 The abbreviation SAR used in water quality refers to the _____.
- A. sulphur acidity ratio
 - B. sodium absorption ratio
 - C. soil-air reabsorption
 - D. saline absorption ratio
- 1.8 Savannah is always associated with _____.
- A. grasslands
 - B. succulents
 - C. the Karoo
 - D. sparse grass covering
- 1.9 An evaporation pan is associated with _____.
- A. plant nutrition
 - B. water budgeting
 - C. irrigation scheduling
 - D. seepage of water

- 1.10 Die beskerming van grond en die optimale gebruik daarvan, asook die verbetering daarvan is _____.
- A. natuurbewaring
 - B. grondherwinning
 - C. grondbewaring
 - D. grondrehabilitasie
- 1.11 In suurgrond sal die kolloïede oorwegend katione van _____ bevat.
- A. kalsium en magnesium
 - B. natrium en magnesium
 - C. waterstof
 - D. magnesium
- 1.12 'n Gevlekte kleur in grond is 'n aanduiding van _____.
- A. 'n hoë organiese materiaal-inhoud
 - B. droë grond
 - C. versuipde grond
 - D. oksidasie
- 1.13 Watter een van die volgende is **nie** 'n eienskap van sandgrond **nie**?
- A. Dit is maklik om te bewerk.
 - B. Dit is hoogs vrugbaar.
 - C. Dit is goed gedreineer.
 - D. Dit het 'n lae pH.
- 1.14 Kookwatersiekte by koring word veroorsaak deur _____.
- A. kaliumvergiftiging
 - B. 'n natriumtekort
 - C. magnesiumvergiftiging
 - D. 'n kopertekort
- 1.15 Watter een van die volgende is **nie** 'n vereiste vir fotosintese **nie**?
- A. Suurstof
 - B. Water
 - C. Chlorofil
 - D. Sonligenergie
- 1.16 Watter veldtipe kom oorwegend in 'n laereënval-gebied voor?
- A. Subtropiese woude
 - B. Gematigde woude
 - C. Bosveldsavanna
 - D. Bossavanna

- 1.10 The protection of soil, the maximum use of it and the improvement thereof, is _____.
- A. nature conservation
 - B. soil reclamation
 - C. soil conservation
 - D. soil rehabilitation
- 1.11 In acid soil the colloids most frequently contain cations of _____.
- A. calcium and magnesium
 - B. sodium and potassium
 - C. hydrogen
 - D. magnesium
- 1.12 A mottled colour in soils is an indication of _____.
- A. a high organic matter content
 - B. dry soil
 - C. water-logged soil
 - D. oxidation
- 1.13 Which one of the following is **not** a characteristic of sandy soils?
- A. It is easy to cultivate.
 - B. It is highly fertile.
 - C. It has good drainage.
 - D. It has a low pH.
- 1.14 Boiling water disease in wheat-plants is caused by _____.
- A. potassium toxicity
 - B. potassium deficiency
 - C. magnesium toxicity
 - D. copper deficiency
- 1.15 Which one of the following is **not** a requirement of the process of photosynthesis?
- A. Oxygen
 - B. Water
 - C. Chlorophyll
 - D. Radiant energy
- 1.16 Which veld type occurs mostly in low rainfall areas?
- A. Sub-tropical forest
 - B. Temperate forest
 - C. Bushveldsavannah
 - D. Bossavannah

- 1.17 Die manlike gameet in die stuifmeelbuis versmelt met _____.
- A. sigoot
 - B. die kiemwitsel
 - C. 'n antipodale sel
 - D. 'n endospermsel
- 1.18 Watter een van die volgende is **nie** deel van die epididimus nie?
- A. Capsule
 - B. Caput
 - C. Cauda
 - D. Corpus
- 1.19 Bevrugting by die koei vind plaas in die _____.
- A. ismus
 - B. ampulla
 - C. miometrium
 - D. endometrium
- 1.20 Die toestand waar een of albei die testikels by die bul in die buikholte agterbly, staan bekend as _____.
- A. steriliteit
 - B. impotensie
 - C. kriptorchidisme
 - D. mummifikasie
- 1.21 Die tipe teling wat daarop ingestel is om 'n bepaalde verwantskap met 'n besondere uitstaande voorouer te behou staan bekend as _____.
- A. lynteling
 - B. inteling
 - C. opgradering
 - D. kruisteling
- 1.22 Die hormoon testosteroon word afgeskei deur die _____.
- A. selle van Leydig
 - B. selle van Sertoli
 - C. saadbuisies
 - D. vas deferens
- 1.23 In die spysverteringskanaal van die hoender lê die maag agter die _____.
- A. krop
 - B. larinks
 - C. oesofagus
 - D. farinks

- 1.17 A male gamete in the pollen tube fuses with _____.
- zygote
 - the ovule
 - an antipodal cell
 - the endosperm cell
- 1.18 Which one of the following does **not** form part of the epididymis?
- Capsule
 - Caput
 - Cauda
 - Corpus
- 1.19 Fertilization in a cow takes place in the _____.
- isthmus
 - ampulla
 - myometrium
 - endometrium
- 1.20 The failure of one or both testicles to descend from the abdominal cavity is known as _____.
- sterility
 - impotence
 - cryptorchidism
 - mummification
- 1.21 The type of breeding involved in maintaining a certain relationship with an outstanding ancestor is known as _____.
- line breeding
 - inbreeding
 - upgrading
 - cross-breeding
- 1.22 Testosterone is a hormone secreted by the _____.
- Leydig cells
 - Sertoli cells
 - seminiferous tubules
 - vas deferens
- 1.23 In the alimentary canal of a fowl, the stomach lies behind the _____.
- crop
 - larynx
 - oesophagus
 - pharynx

- 1.24 Die galbuis open in die _____.
- A. maag
 - B. duodenum
 - C. jejenum
 - D. ileum
- 1.25 Die kleinste deel van die saamgestelde maag van die koei is die _____.
- A. rumen
 - B. reticulum
 - C. omasum
 - D. abomasum
- 1.26 Bloed wat ryk is aan voedingstowwe word vervoer na die lewer deur die _____.
- A. lewerpoortaar
 - B. dorsale aar
 - C. longaar (pulmonêre aar)
 - D. longslagaar (pulmonêre slagaar)
- 1.27 Watter een van die volgende is **nie** 'n vetoplosbare vitamien **nie**?
- A. Vitamien A
 - B. Vitamien D
 - C. Vitamien C
 - D. Vitamien E
- 1.28 Watter een van die volgende dien as isoleerweefsel in die soogdierliggaam?
- A. Proteïene
 - B. Koolhidrate
 - C. Stysel
 - D. Vet
- 1.29 Lamkruis by skape word veroorsaak deur 'n tekort aan _____.
- A. sink
 - B. kobalt
 - C. koper
 - D. jodium
- 1.30 Aanhoudende bloeding word veroorsaak deur 'n tekort aan _____.
- A. Vitamien A
 - B. Vitamien B₁₂
 - C. Vitamien E
 - D. Vitamien K

30x2=[60]

- 1.24 The bile duct opens into the _____.
- A. stomach
 - B. duodenum
 - C. jejunum
 - D. ileum
- 1.25 The smallest portion of the compound stomach of a cow is the _____.
- A. rumen
 - B. reticulum
 - C. omasum
 - D. abomasum
- 1.26 Blood that is rich in nutrients is transported to the liver via the _____.
- A. portal vein
 - B. dorsal vein
 - C. pulmonary vein
 - D. pulmonary artery
- 1.27 Which one of the following is **not** a fat-soluble vitamin?
- A. Vitamin A
 - B. Vitamin D
 - C. Vitamin C
 - D. Vitamin E
- 1.28 Which one of the following serves as an insulating tissue in mammalian bodies?
- A. Proteins
 - B. Carbohydrates
 - C. Starch
 - D. Fats
- 1.29 Swayback in sheep is caused by a deficiency of _____.
- A. zinc
 - B. cobalt
 - C. copper
 - D. iodine
- 1.30 Profuse bleeding is caused by a deficiency of _____.
- A. Vitamin A
 - B. Vitamin B₁₂
 - C. Vitamin E
 - D. Vitamin K

30x2=[60]

VRAAG 1B

- 1.31 Voltooi elk van die volgende stellings deur die ontbrekende woord(e) in te vul.
- 1.31.1 Die optimum temperatuur vir die ontkieming van sade is ongeveer _____ °C.
- 1.31.2 Die massa van 'n grondmonster gedeel deur die totale volume van die grond is bekend as die _____.
- 1.31.3 'n Siekte wat lei tot die misvorming en verswering van die horingvlies in die oë van hoenders staan bekend as _____.
- 1.31.4 Voedsel in die spysverteringskanaal beweeg as gevolg van _____.
- 1.31.5 Karoteen en xantofil is _____ pigmente.
- 1.31.6 Die toediening van kunsmis in die vorm van 'n fyn mis op die bogrondse dele van plante staan bekend as _____.
- 1.31.7 _____ is die progressiewe ontwikkeling van plantegroei in enige area deur 'n reeks verskillende groepe of gemeenskappe.
- 1.31.8 Die faktor wat die grootste enkele invloed op die ontwikkeling van plantgemeenskappe het, is _____.
- 1.31.9 Die laagste prys waarteen produkte op 'n beheerde mark verkoop mag word, word die _____ prys genoem.
- 1.31.10 Geleende geld staan bekend as _____. 10x2=(20)
- 1.32 Verstrek die korrekte **landboukundige term** vir elk van die volgende beskrywings. Skryf die korrekte antwoord neer teenoor die toepaslike nommer in jou antwoordboek.
- 1.32.1 Die grondfraksie met 'n diameter van 0,02 tot 0,002 mm.
- 1.32.2 Die opeenvolging van grondhorisonte wat duidelik sigbaar is in 'n vertikale snit van die grond.
- 1.32.3 Die vermoë van grond om 'n bepaalde hoeveelheid water vas te hou, nadat dit volledig met water versadig is en nadat dreinerings plaasgevind het.
- 1.32.4 Die bruto energiewaarde van 'n voer, minus die energie wat in die mis verloor word.
- 1.32.5 Die verhouding waarin die verteerbare proteïene in 'n rantsoen staan tot die verteerbare nie-stikstofhoudende bestanddele.

QUESTION 1B

- 1.31 Complete each of the following statements by filling in the missing word(s).
- 1.31.1 The optimum temperature for seed germination is approximately _____ °C.
- 1.31.2 The mass of a soil sample, divided by the total volume of the soil is known as _____.
- 1.31.3 A disease which results in the ulceration and deformation of the cornea of the eyes of chickens is called _____.
- 1.31.4 Food in the alimentary canal moves as a result of _____.
- 1.31.5 Carotene and xantophyll are _____ pigments.
- 1.31.6 The application of fertilizer in the form of a fine mist to the aerial portion of plants is called _____.
- 1.31.7 _____ is the progressive development of vegetation in any area through a series of different groupings or communities.
- 1.31.8 The factor that has the single most important influence on the development of plant communities is _____.
- 1.31.9 The lowest price at which a product may be sold on controlled markets is called the _____ price.
- 1.31.10 Borrowed money is referred to as _____. 10x2=(20)
- 1.32 Supply the correct **agricultural term** for each of the following descriptions. Write down the correct answer next to the appropriate number in your answer book.
- 1.32.1 The soil fraction with a diameter of 0,02 to 0,002 mm.
- 1.32.2 The succession of soil horizons which are visible in a vertical section through soil.
- 1.32.3 The ability of soil to hold a given quantity of water after the soil has been completely saturated with water and after drainage has taken place.
- 1.32.4 The gross energy value of feed minus the energy lost in the faeces.
- 1.32.5 The ratio between digestible protein in a ration and the digestible non-nitrogen compounds.

- 1.32.6 Die gelykvormige toediening van kunsmis oor die hele oppervlakte van die grond voor aanplanting.
- 1.32.7 'n Vrug afkomstig van 'n enkelblom met 'n klomp enkelvoudige stampers.
- 1.32.8 Die steriliteit wat voorkom by 'n vers van 'n tweeling bestaande uit 'n bul en vers.
- 1.32.9 Die verbouing van dieselfde gewas jaar na jaar op dieselfde grond.
- 1.32.10 Wanneer te veel kapitaal in 'n boerdery belê word, wat maak dat die rentelas per eenheid styg. 10x2=(20)

TOTAAL VIR AFDELING A: [100]

AFDELING B

VRAAG 2

- 2.1 Bespreek VIER maniere waarop die landbouer tot die vernietiging van grondstruktuur bydra. (8)
- 2.2 Noem die VYF meesterhorisonte in korrekte volgorde (van bo na onder) en noem die vernaamste eienskappe van elk. (13)
- 2.3 Verduidelik kortliks die energieveranderinge wat voorkom, namate water deur grond beweeg totdat dit deur plantwortels geabsorbeer word. (8)
- 2.4 Wat is die verskil tussen **aktiewe suurheid** en **reserwesuurheid**? (4)
- 2.5 Verduidelik die chemiese reaksie wat plaasvind indien 'n brakgrond met gips (CaSO_4) behandel word. (7)
- 2.6 Bespreek die omstandighede waaronder humus in grond óf sal versamel óf ontbind. (10)
- [50]**

- 1.32.6 The uniform application of fertilizer over the whole surface of the field before planting.
- 1.32.7 A fruit produced from a single flower with many simple pistils.
- 1.32.8 Sterility of a heifer in the case of a twin bull and heifer.
- 1.32.9 The cultivation of one crop on the same piece of land year after year.
- 1.32.10 When too much capital is invested in a farming endeavour, thus causing the interest liability per unit to increase. 10x2=(20)

TOTAL FOR SECTION A: [100]

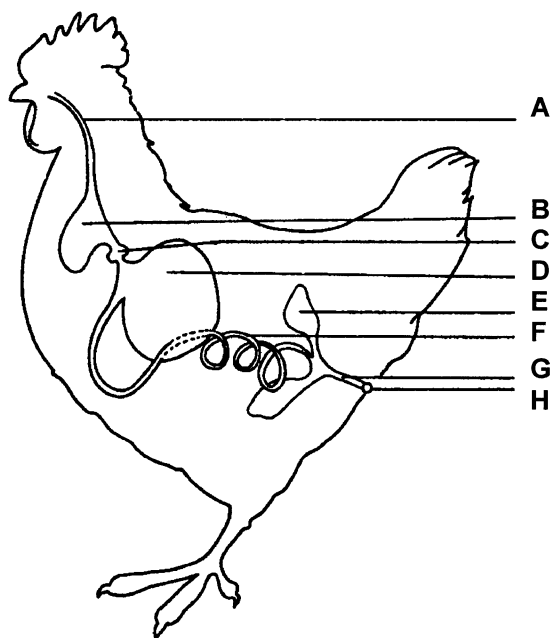
SECTION B

QUESTION 2

- 2.1 Discuss FOUR ways in which a farmer contributes to the destruction of soil structure. (8)
- 2.2 Correctly name the FIVE major horizons (from top to bottom) and give the main properties of each. (13)
- 2.3 Briefly explain the energy changes which occur when water moves through soil until it is absorbed by plant roots. (8)
- 2.4 What is the difference between **active acidity** and **reserve acidity**? (4)
- 2.5 Explain the chemical reactions which take place when a brackish soil is treated with gypsum (CaSO_4). (7)
- 2.6 Discuss the circumstances under which humus will either increase or decay in the soil. (10)
- [50]**

VRAAG 3

- 3.1 Bestudeer die onderstaande diagram van 'n hoender se spysverteringskanaal en beantwoord die vrae wat volg.



3.1.1 Benoem dele A tot H. (8)

3.1.2 Verstrek die letter en die naam van die gedeelte waarin die volgende plaasvind:

- (a) Soutsuur afgeskei word
- (b) Verteerde voedingstowwe geabsorbeer word
- (c) Die kos fynemaal word
- (d) Die stoor en sagmaak van voedsel
- (e) Die afskeiding van pankreassap (5)

3.1.3 Noem die funksies van soutsuur. (5)

3.2 Beskryf kortliks die funksies van die mikro-organismes in die rumen van die bees. (9)

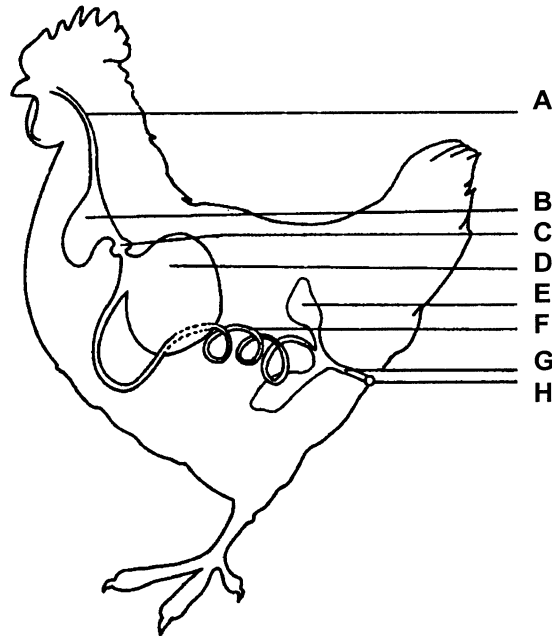
3.3 Noem AGT simptome by plaasdiere wat op 'n vitamien A-tekort dui. (8)

3.4 Bereken die verteerbaarheidskoëffisiënt van die volgende voer:

'n Koei vreet 24 kg met 'n voggehalte van 12%. 10 kg mis is uitgeskei met 'n voginhoud van 25%. (8)

QUESTION 3

3.1 Study the diagram below of the digestive system of a fowl and answer the questions which follow.



3.1.1 Provide labels for parts A to H. (8)

3.1.2 Give the name and letter of the part in which the following takes place:

- (a) Hydrochloric acid is secreted
- (b) Digested nutrients are absorbed
- (c) The grinding of food
- (d) The storage and softening of food
- (e) The depositing of pancreatic juice (5)

3.1.3 List the functions of hydrochloric acid. (5)

3.2 Briefly discuss the functions of the micro organisms in the rumen of cattle. (9)

3.3 Mention EIGHT symptoms of a vitamin A deficiency in farm animals. (8)

3.4 Calculate the digestible coefficient of the following fodder:

A cow ate 24 kg with a moisture content of 12%. 10 kg manure was excreted with a moisture content of 25%. (8)

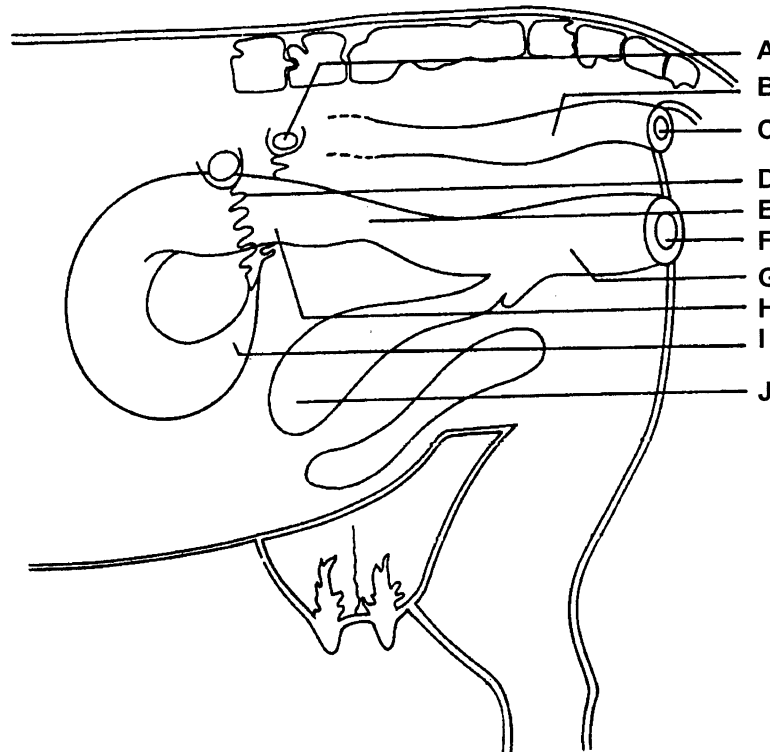
- 3.5 Noem SEWE faktore wat die verteerbaarheid en voedingswaarde van 'n hooi sal bepaal.

(7)
[50]

VRAAG 4

- 4.1 Gee 'n skematiese voorstelling om die proses van spermatogenese te illustreer. (7)

- 4.2 Die onderstaande figuur illustreer die voortplantingstelsel van die koei. Gee byskrifte vir A tot J. (10)



- 4.3 Noem die VIER agtereenvolgende fases in die bronstigheidssiklus en gee die belangrikste kenmerke van elke fase. (12)

- 4.4 Beantwoord die volgende vrae oor **sinchronisasie van die bronstigheidssiklus**.

4.4.1 Wat word bedoel met sinchronisasie van die bronstigheidssiklus? (1)

4.4.2 Watter VIER metodes kan 'n boer gebruik om bronstigheid te sinchroniseer? (4)

4.4.3 Noem die voordele. (4)

- 4.5 Noem VYF moontlike oorsake van die resorpsie van 'n embrio by die koei. (5)

- 4.6 Watter nadele hou kunsmatige inseminasie in? (7)
[50]

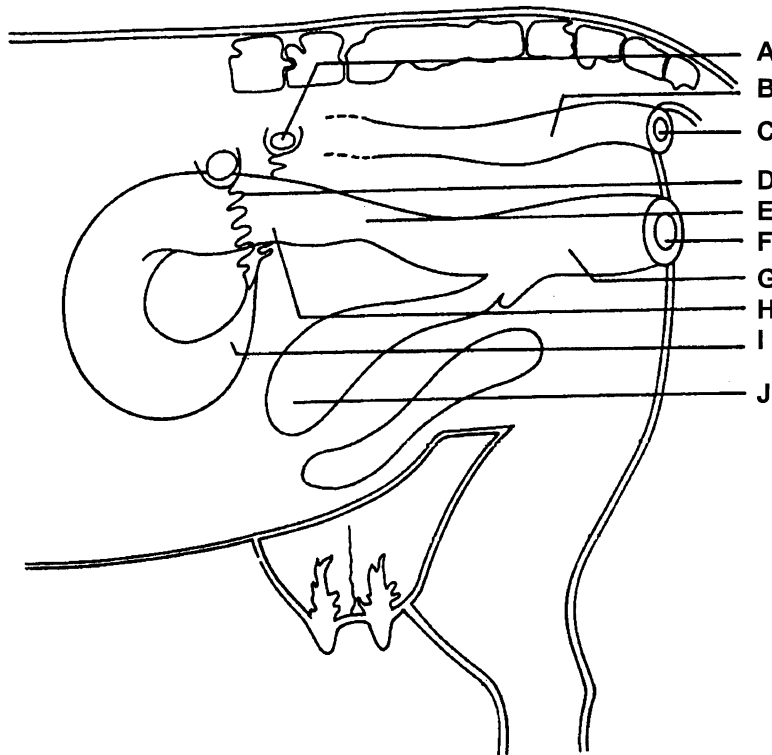
- 3.5 State SEVEN factors which will determine the digestibility and nutritive value of hay.

(7)
[50]

QUESTION 4

- 4.1 Give a schematic representation to illustrate the process of spermatogenesis. (7)

- 4.2 The figure below illustrates the reproductive system of a cow. Provide labels for A to J. (10)



- 4.3 Name the FOUR successive phases in the oestrus cycle and give the main characteristics of each phase. (12)

- 4.4 Answer the following questions on the **synchronisation of the oestrus cycle**.

4.4.1 What is meant by the synchronisation of the oestrus cycle? (1)

4.4.2 What FOUR methods can a farmer use to synchronise oestrus? (4)

4.4.3 Name the advantages. (4)

- 4.5 Give FIVE possible causes of the resorption of the embryo in the cow. (5)

- 4.6 What are the disadvantages of using artificial insemination? (7)

[50]

VRAAG 5

- 5.1 Bespreek die vereistes vir die fotosintese-proses. (10)
- 5.2 Beantwoord die volgende vrae oor **fosfor**.
- 5.2.1 Noem sowel die anorganiese vorms waarin fosfor in die grond voorkom as die toeganklikheid van elke vorm. (6)
- 5.2.2 Beantwoord die volgende vrae oor die **toeganklikheid van fosfor**.
- (a) Wat is die optimum pH vir die toeganklikheid van fosfor in die grond? (1)
- (b) Hoe beïnvloed die pH die toeganklikheid van fosfor? (3)
- (c) Hoe beïnvloed yster in die grond die toeganklikheid van fosfor? Gee redes vir jou antwoord. (3)
- (d) Watter uitwerking het die ontbinding van organiese materiaal op fosfor se toeganklikheid? (2)
- 5.3 Beantwoord die volgende vrae oor **KAN**.
- 5.3.1 Wat beteken KAN? (1)
- 5.3.2 Daar is twee soorte KAN in die mark, naamlik KAN (26) en KAN (28). Wat beteken die syfer tussen hakies? (1)
- 5.3.3 KAN besit **twee vorms** van toeganklike stikstof. Noem die twee vorms, asook die verskil tussen hulle. (2)
- 5.3.4 Verduidelik die volgende gebruike van KAN:
- (a) Dit kan breedwerpig toegedien word. (1)
- (b) Dit kan gebruik word as bo-bemesting. (1)
- (c) Dit kan toegedien word tydens saaityd. (1)
- (d) Dit word algemeen gebruik op sanderige suurgrond. (1)
- 5.3.5 Noem nog 'n **stikstofbevattende kunsmis** wat gebruik word. (2)
- 5.4 Bespreek kortliks die nadelige gevolge van brakgrond. (10)
- 5.5 Wat is die chemiese uitwerking van plaasmis op grond? (5)

[50]

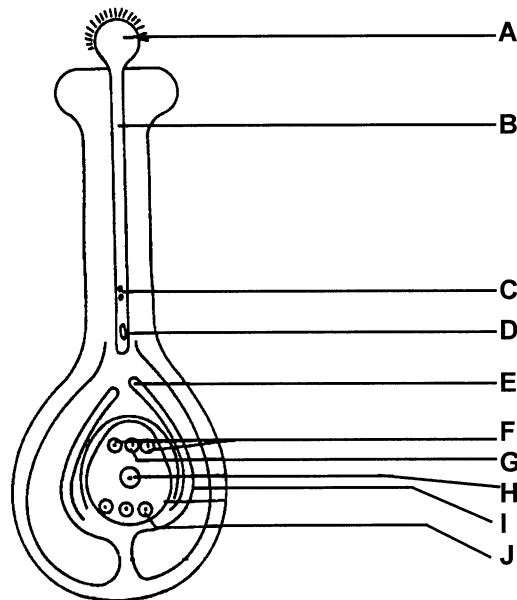
QUESTION 5

- 5.1 Discuss the requirements for the process of photosynthesis. (10)
- 5.2 Answer the following questions on **phosphorus**.
- 5.2.1 Name the inorganic forms in which phosphorus occurs in soil as well as the availability of each form. (6)
- 5.2.2 Answer the following questions with reference to the **availability of phosphorus**.
- (a) What is the optimum pH for phosphorus accessibility in soil? (1)
- (b) How does the pH influence the accessibility of phosphorus? (3)
- (c) What effect does iron in soil have on the accessibility of phosphorus? Substantiate your answer. (3)
- (d) How does the decomposition of organic matter influence the availability of phosphorus? (2)
- 5.3 Answer the following questions on **LAN**.
- 5.3.1 What does LAN stand for? (1)
- 5.3.2 Two types of LAN are available on the market, LAN (26) and LAN (28). Explain the meaning of the number in brackets. (1)
- 5.3.3 LAN contains **two forms** of accessible nitrogen. Name them as well as the difference between them. (2)
- 5.3.4 Explain the following uses of LAN:
- (a) It can be broadcasted. (1)
- (b) It can be used as a top dressing. (1)
- (c) It can be applied during sowing. (1)
- (d) It is commonly used on sandy acid soils. (1)
- 5.3.5 Provide the name of another **nitrogen containing fertiliser** that is used. (2)
- 5.4 Briefly discuss the detrimental effects of brackish soils. (10)
- 5.5 What is the chemical effect of farm manure on soil? (5)

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VRAAG 6

- 6.1 Benoem A tot J in die onderstaande diagram. (10)



- 6.2 Noem die verskille tussen 'n eensaadlobbige blom (koring) en 'n tweesaadlobbige blom. (8)
- 6.3 Noem SES ongeslagtelike voortplantingsmetodes by plante. (6)
- 6.4 Bespreek die funksies van grond in die produksieproses. (8)
- 6.5 Noem die stappe by besproeiingskedulering met behulp van 'n verdampingspan. (6)
- 6.6 Watter faktore moet in gedagte gehou word, alvorens vloedbesproeiing toegepas kan word? (6)
- 6.7 Noem die voordele en nadele van mikro-besproeiing. (6)

[50]

VRAAG 7

- 7.1 Bespreek die oogmerke van grondbewerking. (12)
- 7.2 Hoekom word wisselbou as 'n gewenste praktyk beskou? (8)
- 7.3 Noem die ekonomiese kenmerke van grond as 'n produksiefaktor. (5)
- 7.4 Watter probleme is daar verbonde aan kapitaal as produksiefaktor? (7)
- 7.5 Hoekom is dit vir die boer voordelig om sy boerdery-aktiwiteite te **beplan**? (6)
- 7.6 Noem die vereistes vir effektiewe beheer by boerdery. (6)
- 7.7 Watter faktore bemoeilik die bemarking van landbou-produkte? (6)

[50]

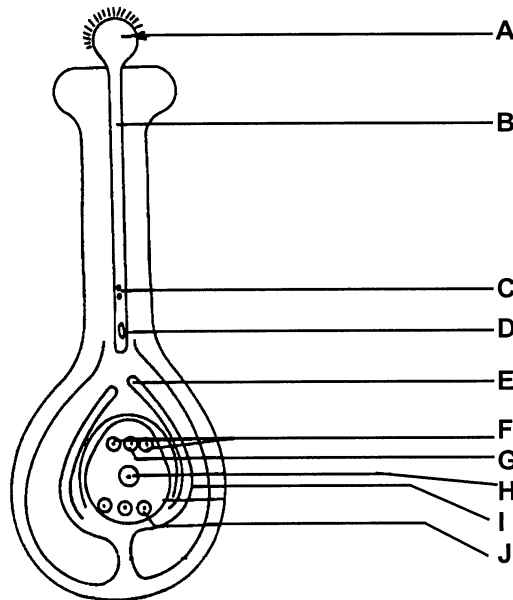
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QUESTION 6

6.1 Provide the diagram with labels from A to J. (10)



- 6.2 List the differences between a monocotyledonous flower (wheat) and a dicotyledonous flower. (8)
- 6.3 Mention SIX asexual reproduction methods used on plants. (6)
- 6.4 Discuss the functions of soil in the production process. (8)
- 6.5 List the steps in scheduled irrigation by means of an evaporation pan. (6)
- 6.6 Which factors must be kept in mind before flood irrigation is applied? (6)
- 6.7 Give the advantages and disadvantages of micro irrigation. (6)
- [50]

QUESTION 7

- 7.1 Discuss the aims of soil cultivation. (12)
- 7.2 Why is crop rotation regarded as an advantageous practice? (8)
- 7.3 Mention the economical characteristics of soil as a factor of production. (5)
- 7.4 What problems are related to capital as a factor of production? (7)
- 7.5 What are the advantages for the farmer who **plans** his activities? (6)
- 7.6 Give the requirements for effective control in farming. (6)
- 7.7 Which factors hamper the marketing of agricultural products? (6)
- [50]

TOTAL FOR SECTION B: [300]

TOTAL: 400

END