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REPUBLIEK VAN SUID-AFRIKA

SENIOR CERTIFICATE EXAMINATION - 2005
SENIORSERTIFIKAAT-EKSAMEN - 2005

BIOLOGY P2
BIOLOGIE V2

HIGHER GRADE
HOËR GRAAD

FEBRUARY/MARCH 2005
FEBRUARIE/MAART 2005

306-1/2

BIOLOGY HG: Paper 2

Marks: 200
Punte : 200



2 Hours
2 Ure

This question paper consists of 17 pages.
Hierdie vraestel bestaan uit 17 bladsye.

X05



INSTRUKSIES EN INLIGTING AAN KANDIDATE

Lees die volgende noukeurig deur voordat die vrae beantwoord word:

1. Beantwoord AL die vrae.
2. Skryf AL die antwoorde in die ANTWOORDEBOEK.
3. Begin elke vraag se antwoord bo-aan 'n nuwe bladsy.
4. Nommer die antwoorde presies soos die vrae genummer is.
5. Skryf netjies en leesbaar.
6. Indien antwoorde nie volgens die instruksies van elke vraag aangebied word nie, sal kandidate punte verloor.
7. ALLE tekeninge moet met potlood gemaak word en die byskrifte met ink.
8. Teken slegs diagramme en vloeddiagramme indien dit vereis word.
9. Die diagramme in die vraestel is nie noodwendig volgens skaal geteken nie.
10. Die gebruik van grafiekpapier is NIE toelaatbaar NIE.
11. Nie-programmeerbare sakrekenaars en passers mag gebruik word.

INSTRUCTIONS AND INFORMATION TO CANDIDATES

Read the following carefully before answering the questions:

1. Answer ALL the questions.
2. Write ALL the answers in the ANSWER BOOK.
3. Start the answer to each question at the top of a new page.
4. Number the answers exactly as the questions are numbered.
5. Write neatly and legibly.
6. If answers are not presented according to the instructions of each question, candidates will lose marks.
7. ALL drawings should be done in pencil and labelled in ink.
8. Only draw diagrams and flow charts when requested to do so.
9. The diagrams in the question paper may not necessarily be drawn to scale.
10. The use of graph paper is NOT permitted.
11. Non-programmable calculators and compasses may be used.

AFDELING A

VRAAG 1

1.1 Verskeie moontlike antwoorde word vir elke vraag verskaf. Dui die korrekte antwoord aan deur slegs die **letter** van jou keuse langs die toepaslike vraagnommer te skryf.

1.1.1 Beweging van urien vanaf die niere na die blaas langs die ureter word veroorsaak deur ...

- A sametrekking van die nier.
- B aktiewe vervoer.
- C sametrekking van die blaas.
- D peristalse van die wande van die ureter.

1.1.2 'n Groot hoeveelheid bemestingstof is by 'n potplant gevoeg. Watter ry van die tabel beskryf die uitwerking van die bemestingstof op die water wat deur die plant geabsorbeer word en die turgessensie van die selle in die blaar?

Ry	Water deur wortels geabsorbeer	Turgessensie van blaarselle
A	het toegeneem	het toegeneem
B	het toegeneem	het afgeneem
C	het afgeneem	het toegeneem
D	het afgeneem	het afgeneem

1.1.3 By baie plante styg die water voordat die blare gevorm word. Hierdie verskynsel is as gevolg van ...

- (i) kapillariteit.
- (ii) die suigkrag van transpirasie.
- (iii) worteldruk.

- A Slegs (i)
- B (i) en (iii)
- C (i) en (ii)
- D Slegs (ii)

1.1.4 In vergelyking met die nierslagaar, vervoer die nieraar ...

- A 'n hoër suurstofkonsentrasie en meer stikstofbevattende afval.
- B dieselfde suurstofkonsentrasie en dieselfde hoeveelheid stikstofbevattende afval.
- C 'n laer suurstofkonsentrasie en minder stikstofbevattende afval.
- D 'n laer suurstofkonsentrasie en meer stikstofbevattende afval.

1.1.5 Die opwaartse beweging van water in 'n plant vind plaas deur die ...

- A xileem.
- B floëem.
- C parenchiem.
- D endodermis.

(5 x 2) (10)

SECTION A**QUESTION 1**

1.1 Various possible answers are provided for each question. Indicate the correct answer by writing only the **letter** of your choice next to the relevant question number.

1.1.1 Movement of urine from the kidneys to the bladder along the ureter is caused by ...

- A contraction of the kidney.
- B active transport.
- C contraction of the bladder.
- D peristalsis of the walls of the ureter.

1.1.2 A large amount of fertiliser was added to a potplant. Which row of this table describes the effects of this fertiliser on the water absorbed by the roots and the turgidity of the cells in the leaf?

Row	Water absorbed by roots	Turgidity of leaf cells
A	increased	increased
B	increased	decreased
C	decreased	increased
D	decreased	decreased

1.1.3 In many plants, water rises before the leaves are formed. This phenomenon is due to ...

- (i) capillarity.
 - (ii) transpiration pull.
 - (iii) root pressure.
- A (i) only
 - B (i) and (iii)
 - C (i) and (ii)
 - D (ii) only

1.1.4 In comparison with the renal artery, the renal vein carries ...

- A a higher oxygen concentration and more nitrogenous waste.
- B the same oxygen concentration and the same amount of nitrogenous waste.
- C a lower oxygen concentration and less nitrogenous waste.
- D a lower oxygen concentration and more nitrogenous waste.

1.1.5 The upward movement of water in a plant takes place through the ...

- A xylem.
- B phloem.
- C parenchyma.
- D endodermis.

(5 x 2) (10)

- 1.2 Gee die korrekte **biologiese term** vir elk van die volgende beskrywings. Skryf slegs die **term** langs die toepaslike vraagnommer.
- 1.2.1 Die deel van die nier wat die piramides bevat
- 1.2.2 Die beweging van watermolekules vanaf 'n flou oplossing na 'n sterk oplossing deur 'n differensieel deurlatende membraan
- 1.2.3 Suiwer stof met die hoogste waterpotensiaal
- 1.2.4 Die finale produk van die nier se uitskeidingsfunksie
- 1.2.5 Die vermoë van watermolekules om as gevolg van hulle vrye energie uit 'n sisteem te diffundeer
- 1.2.6 Die proses waardeur die liggaam van metaboliese afval ontslae raak
- 1.2.7 Die sterk buitenste membraan wat die nier beskerm
- 1.2.8 Die boonste wyer deel van die ureter waarin al die kelke open (8)
- 1.3 Dui aan of elk van die stellings in KOLOM I op **slegs A, slegs B, beide A en B** of **geeneen** van die items in KOLOM II van toepassing is. Skryf **slegs A, slegs B, beide A en B** of **geeneen** langs die toepaslike vraagnommer.

	KOLOM I	KOLOM II
1.3.1	Neem toe met 'n toename in die waterpotensiaal van die selsap	A Grootte van die vakuool B Selwanddruk
1.3.2	Vervoer van water in 'n plant	A Osmose B Transpirasie
1.3.3	Deel van die brein wat betrokke is wanneer 'n skoolsak opgetel word	A Serebrum B Serebellum
1.3.4	Word met temperatuurregulering by soogdiere tydens warm weer geassosieer	A Regopstaande hare B Sweet
1.3.5	Positiewe groeibeweging na die gravitasiekrag van die aarde	A Wortel B Stingel

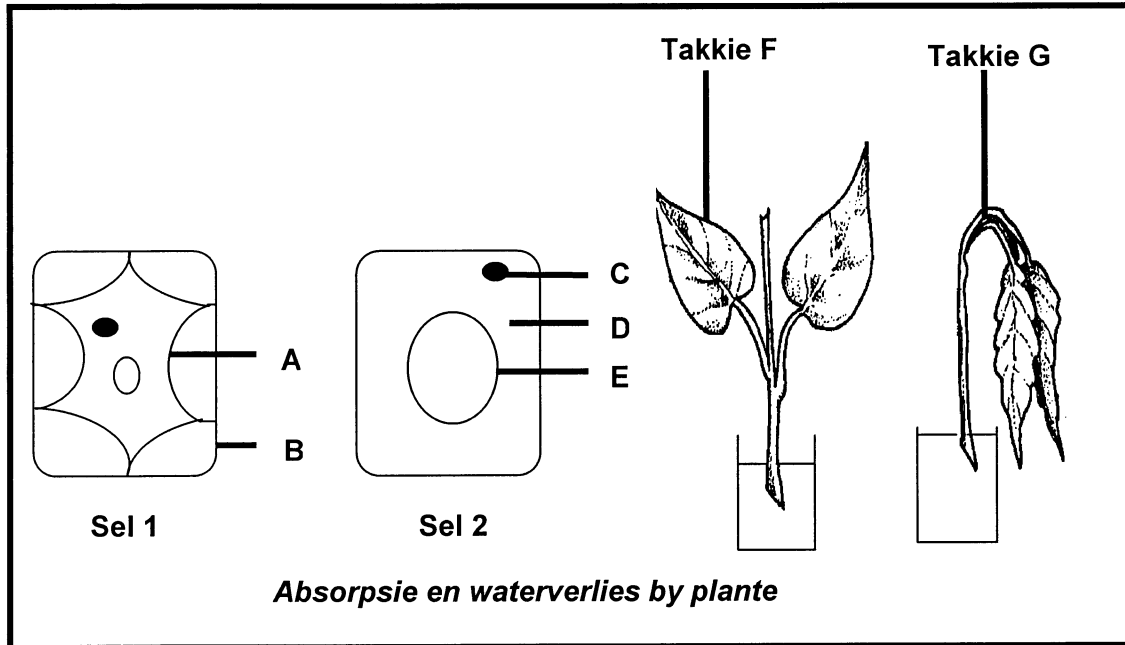
(5 x 2) (10)

- 1.2 Give the correct **biological term** for each of the following descriptions. Write only the **term** next to the relevant question number.
- 1.2.1 The part of the kidney containing pyramids
- 1.2.2 The movement of water molecules from a weak solution to a strong solution through a differentially permeable membrane
- 1.2.3 Pure substance with the highest water potential
- 1.2.4 The final product of the excretory function of the kidney
- 1.2.5 The ability of water molecules to diffuse out of a system as a result of their free energy
- 1.2.6 The process by which the body gets rid of metabolic waste products
- 1.2.7 The strong outer membrane protecting the kidney
- 1.2.8 The upper dilated portion of the ureter into which all calyces open **(8)**
- 1.3 Indicate whether each of the statements in COLUMN I, applies to **A only**, **B only**, **both A and B** or **none** of the items in COLUMN II. Write **A only**, **B only**, **both A and B** or **none** next to the relevant question number.

	COLUMN I	COLUMN II
1.3.1	Increases with an increase in the water potential of the cell sap	A Size of vacuole B Cell wall pressure
1.3.2	Transport of water in a plant	A Osmosis B Transpiration
1.3.3	Part of brain involved when picking up a school bag	A Cerebrum B Cerebellum
1.3.4	Associated with regulation of temperature in mammals during hot weather	A Erect hairs B Sweating
1.3.5	Positive growth movement to gravitational pull of the earth	A Root B Stem

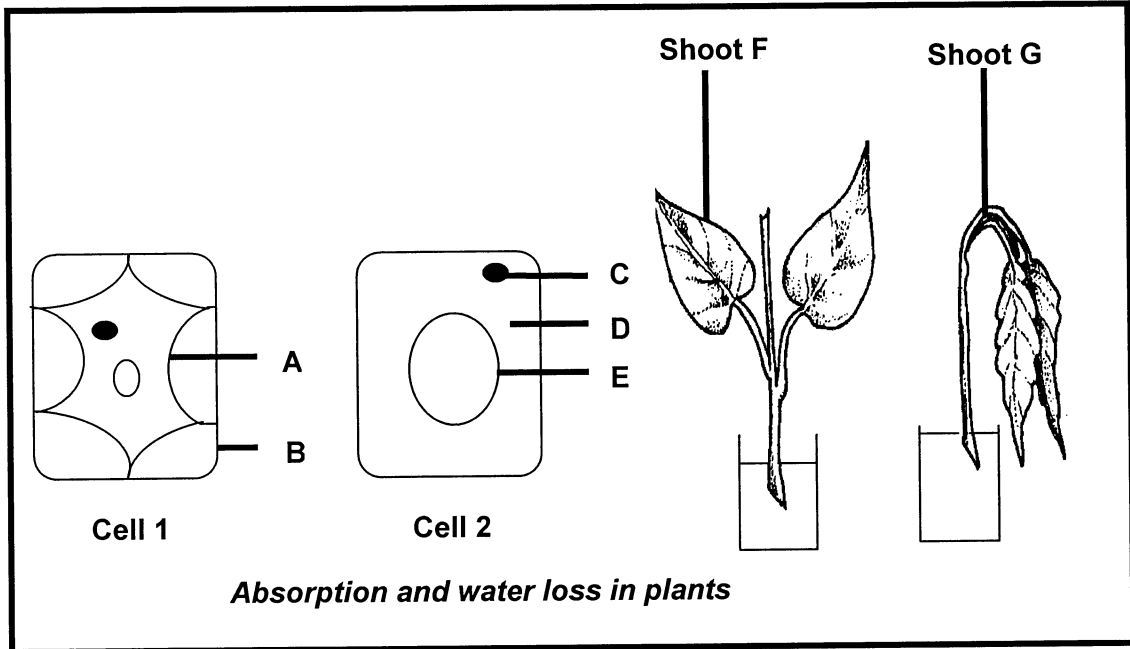
(5 x 2) **(10)**

1.4 Bestudeer die diagramme hieronder en beantwoord die vrae wat volg.



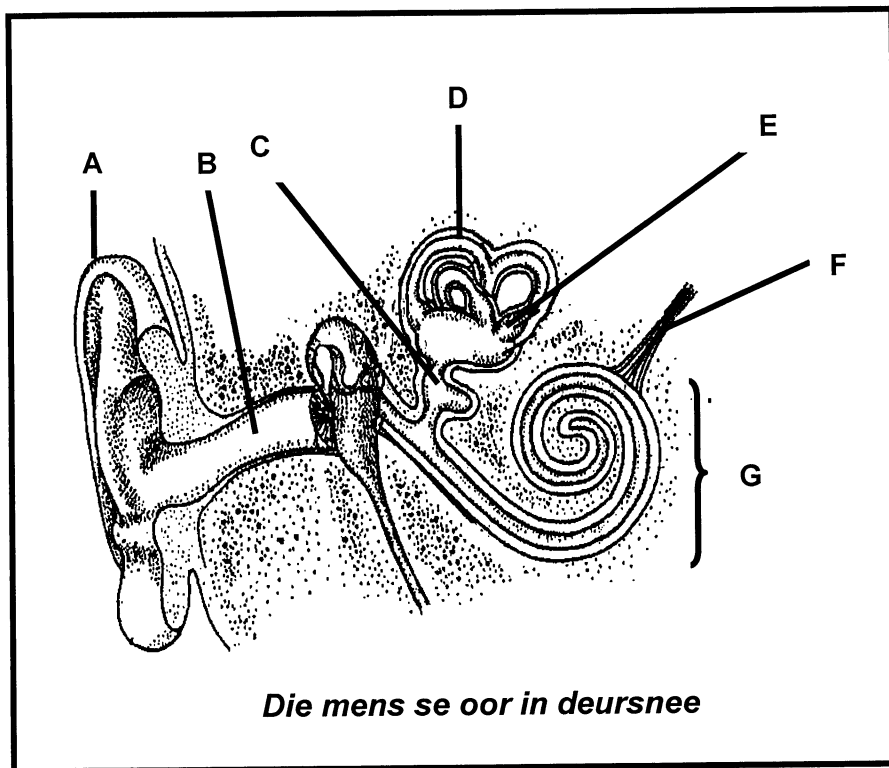
- 1.4.1 Noem die prosesse wat deur sel 1 en takkie G onderskeidelik voorgestel word. (2)
- 1.4.2 Identifiseer dele A, B, C, D en E. (5)
- 1.4.3 Watter sel (1 of 2) is dalk in 'n hipertoniiese oplossing geplaas? (1)
- 1.4.4 Watter sel (1 of 2) kan geassosieer word met takkie: (1)
- (a) G (1)
- (b) F (1)
- 1.4.5 Verduidelik jou antwoord by VRAAG 1.4.4(b). (2)
- (12)**

1.4 Study the diagrams below and answer the questions that follow.



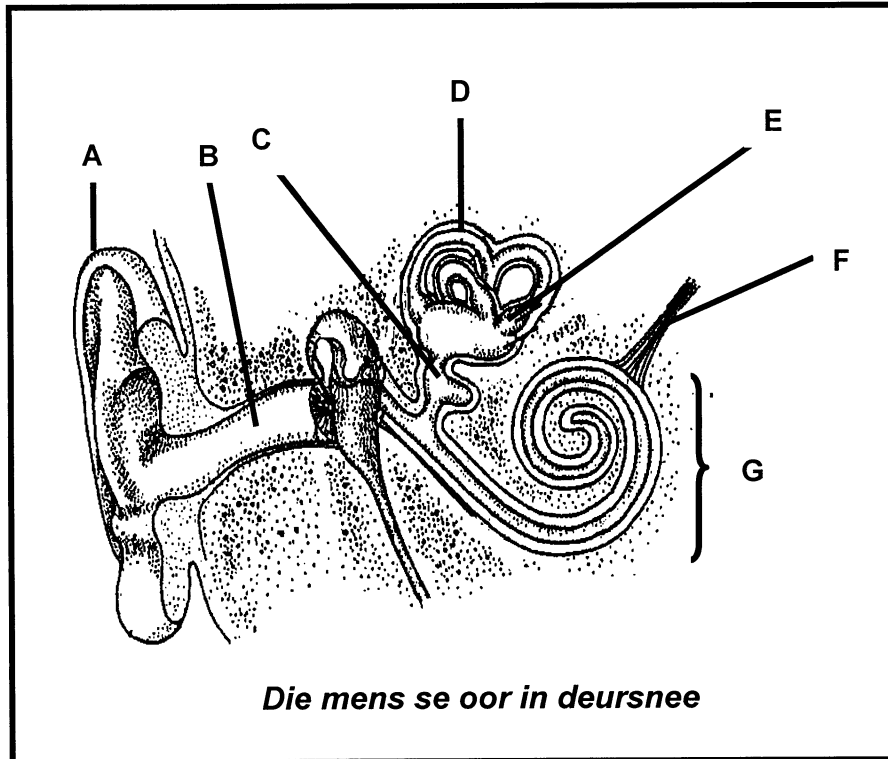
- 1.4.1 Name the processes illustrated by cell 1 and shoot G respectively. (2)
- 1.4.2 Identify parts A, B, C, D and E. (5)
- 1.4.3 Which cell (1 or 2) could have been placed in a hypertonic solution? (1)
- 1.4.4 Which cell (1 or 2) can be associated with shoot:
- (a) G (1)
 - (b) F (1)
- 1.4.5 Explain your answer in QUESTION 1.4.4(b). (2)
- (12)**

1.5 Bestudeer die volgende diagram en beantwoord die vrae wat volg.



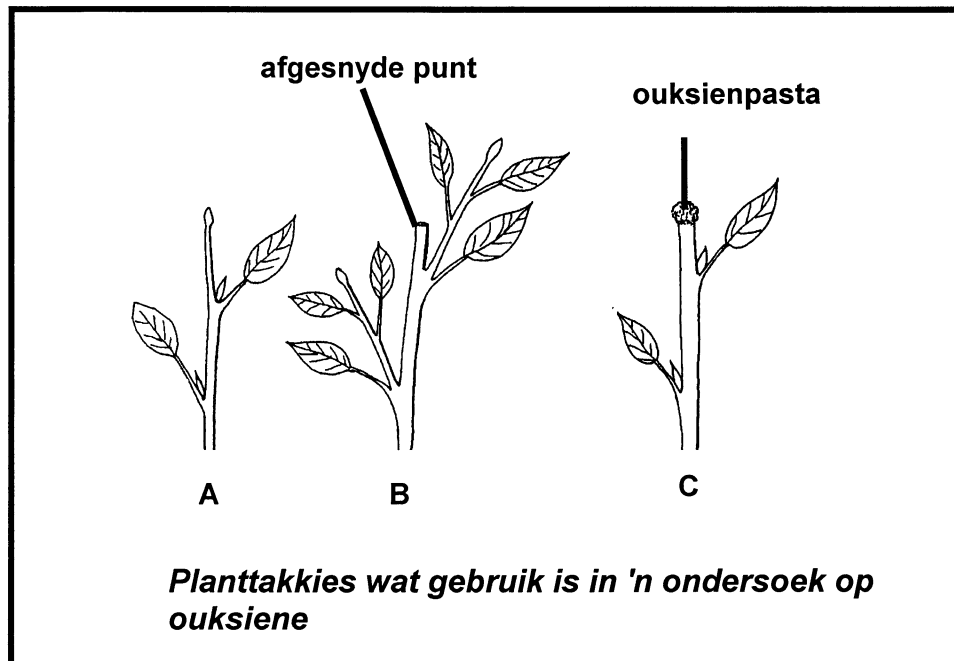
- 1.5.1 Identifiseer dele A, B en F en gee EEN funksie van elkeen. (6)
- 1.5.2 Skryf die **letter** en **naam** van die deel wat verantwoordelik is vir die volgende:
- (a) Waarneming van veranderinge in die rigting van die kop (2)
- (b) Omsetting van klankstimuli na senuwee-impulse (2)
- 1.5.3 Waarom kan 'n mens dikwels die gevoel van 'n oor wat 'geblokkeer' is oorkom deur te sluk? (2)
- 1.5.4 Wat sal gebeur indien die gehoorbeentjies saamsmelt? (2)
- (14)**

1.5 Bestudeer die volgende diagram en beantwoord die vrae wat volg.



- 1.5.1 Identifiseer dele A, B en F en gee EEN funksie van elkeen. (6)
- 1.5.2 Skryf die **letter** en **naam** van die deel wat verantwoordelik is vir die volgende:
- (a) Waarneming van veranderinge in die rigting van die kop (2)
- (b) Omsetting van klankstimuli na senuwee-impulse (2)
- 1.5.3 Waarom kan 'n mens dikwels die gevoel van 'n oor wat 'geblokkeer' is oorkom deur te sluk? (2)
- 1.5.4 Wat sal gebeur indien die gehoorbeentjies saamsmelt? (2)
- (14)**

- 1.6 Die volgende diagram toon 'n ondersoek wat uitgevoer is om die plek waar oksien in plante geproduseer word, te bepaal, en die invloed daarvan op groei en ontwikkeling by plante.

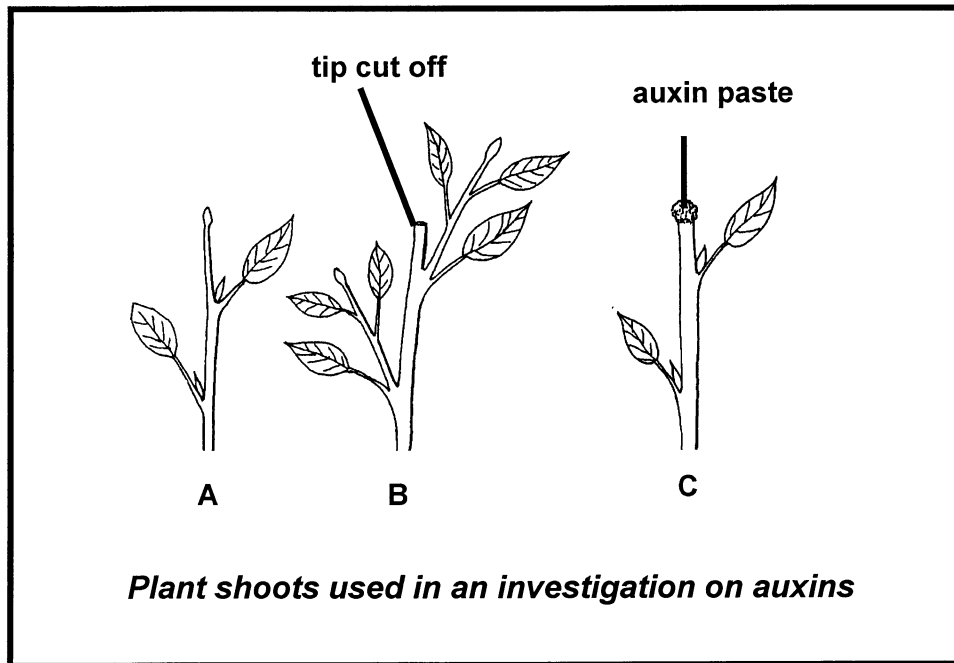


- 1.6.1 Verduidelik waarom die syknoppe in B, en nie in C nie, in staat was om in sytakke te ontwikkel. (2)
- 1.6.2 Gee EEN moontlike afleiding wat vanaf die diagramme gemaak kan word aangaande die plek waar oksiene geproduseer word. (1)
- 1.6.3 (a) Wat sal gebeur indien takkie B vir 'n paar dae van een kant belig word? (1)
- (b) Verduidelik jou antwoord by VRAAG 1.6.3(a). (2)
- (6)**

Totaal Vraag 1: 60

TOTAAL AFDELING A: 60

- 1.6 The following diagram shows an investigation that was carried out to determine the site of auxin production and its effect on growth and development in plants.



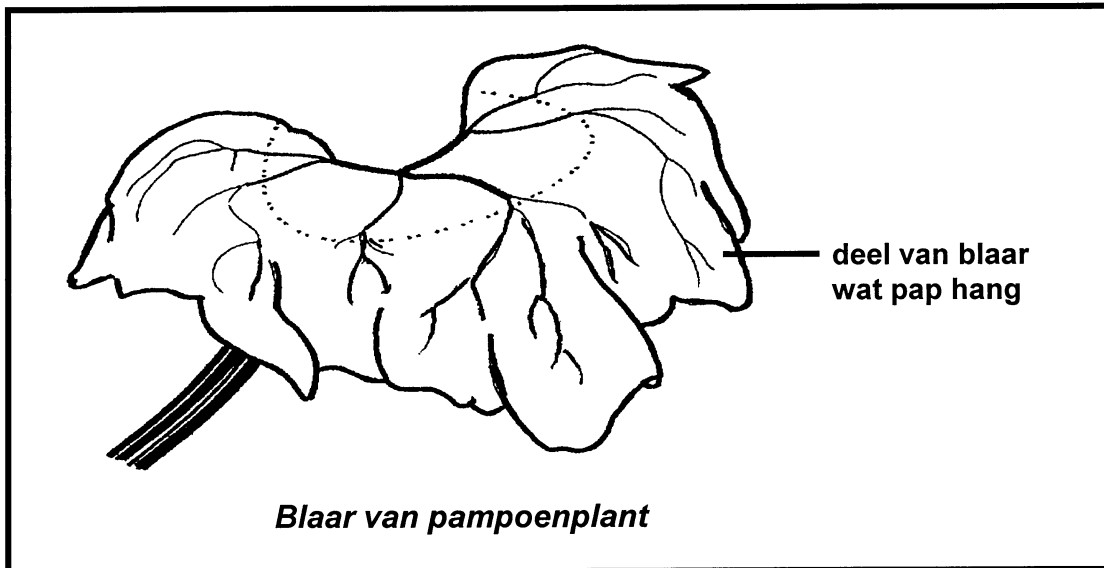
- 1.6.1 Explain why the lateral buds in B, and not C, were able to develop into lateral branches. (2)
- 1.6.2 State ONE possible deduction that can be made from the diagrams with regard to the site where auxins are produced. (1)
- 1.6.3 (a) What would happen if shoot B was illuminated from one side for a few days? (1)
- (b) Explain your answer to QUESTION 1.6.3(a). (2)
- (6)

Total Question 1: 60

TOTAL SECTION A: 60

AFDELING B**VRAAG 2**

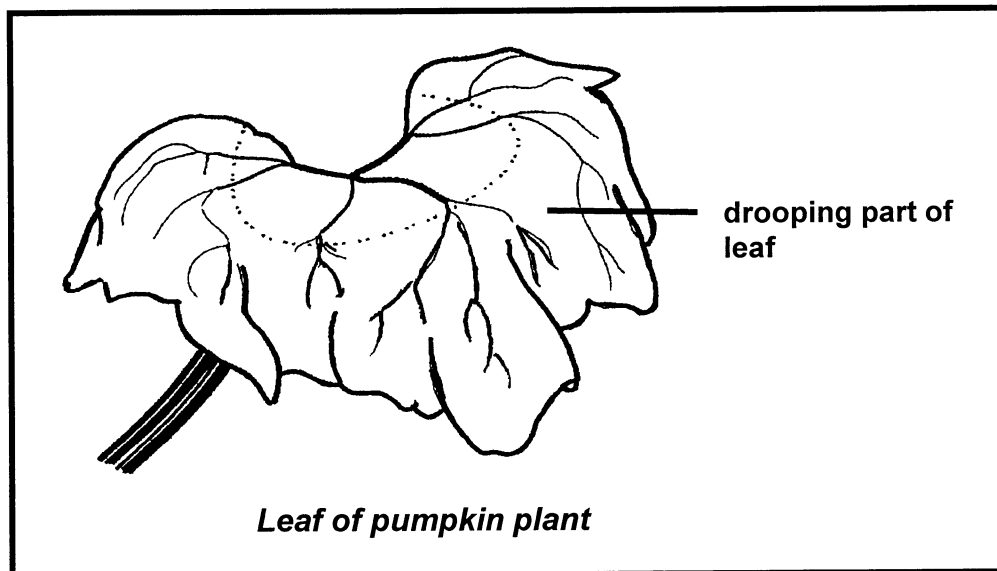
- 2.1 Die blare van pampoenplante hang pap op 'n warm somersmiddag soos aangedui in die diagram hieronder. Die blare is stewig in die middel, en hang af rondom die kante.



- 2.1.1 Verduidelik waarom die blaar stewig bly in die middel, alhoewel dit erg pap hang langs die kante. (3)
- 2.1.2 Onder sekere omgewingstoestande verskyn waterdruppels aan die kante van 'n pampoenblaar. Definieer die proses waardeur die druppels verskyn. (3)
- 2.1.3 Noem TWEE omgewingsfaktore wat die proses gedefinieer by VRAAG 2.1.2 sal bevorder. (2)
- (8)**

SECTION B**QUESTION 2**

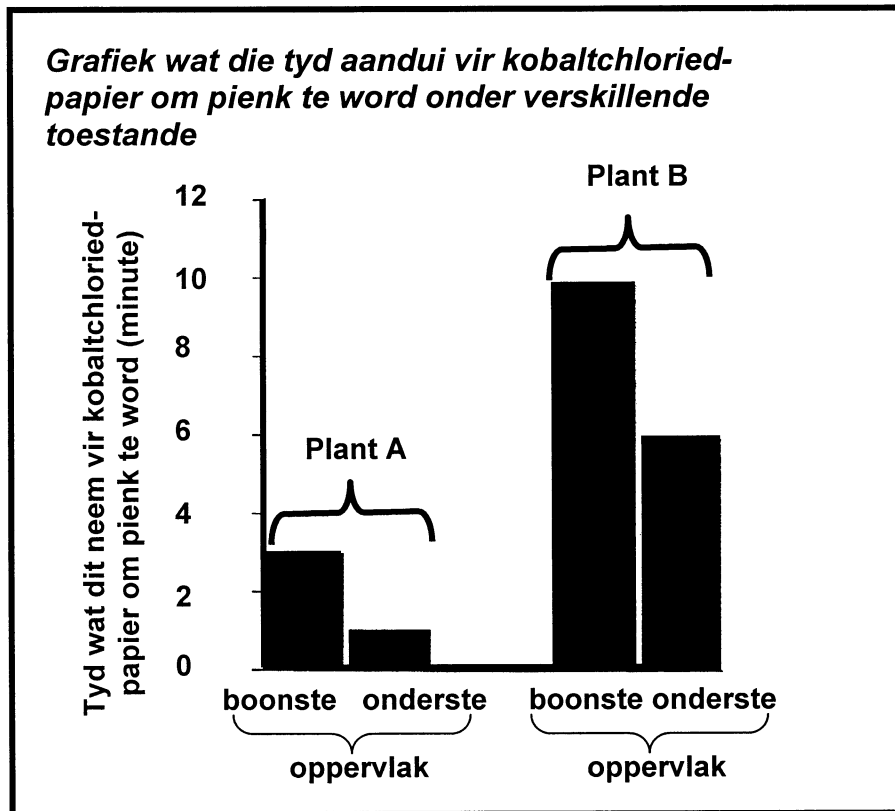
- 2.1 On a hot afternoon in summer the leaves of pumpkin plants droop (hang) as shown in the diagram below. The leaves are firm in the centre, and hang down around the edge.



- 2.1.1 Explain why the leaf remains firm near the centre, although it hangs badly around the edges. (3)
- 2.1.2 Under certain environmental conditions water droplets appear at the edge of a pumpkin leaf. Define the process by which the droplets appear. (3)
- 2.1.3 List TWO environmental factors which will favour the process defined in QUESTION 2.1.2. (2)
- (8)**

2.2 Bestudeer die volgende grafiek en beantwoord die vrae wat volg.

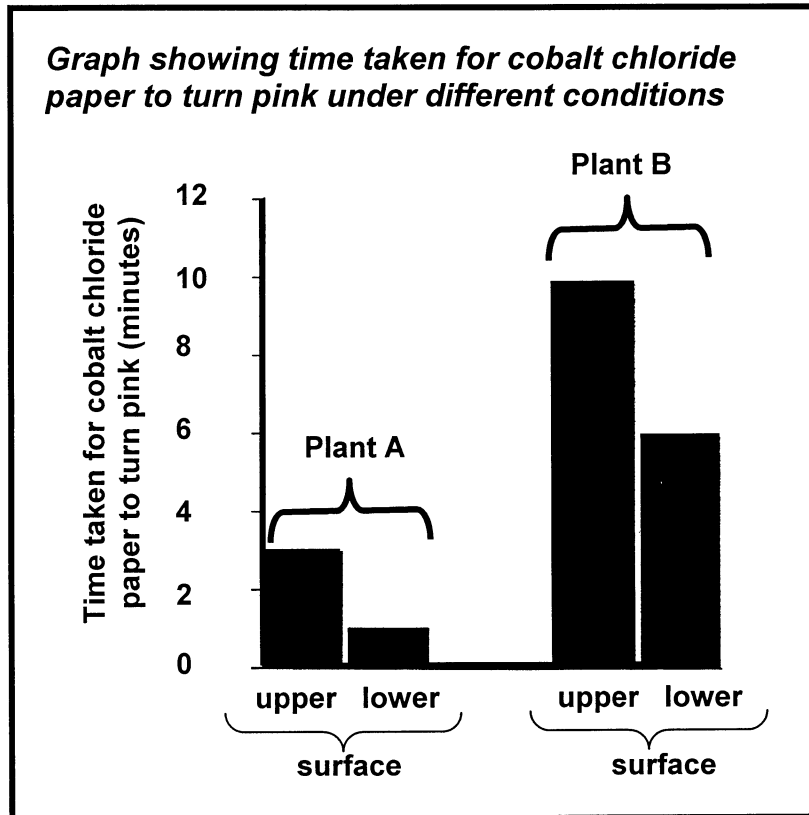
LET WEL: Droë kobaltchloriedpapier is blou, maar word pienk wanneer dit met water in aanraking kom.
 Beide plante, A en B, is aan dieselfde omgewingsfaktore blootgestel.



- 2.2.1 Gee 'n moontlike doel vir die ondersoek. (2)
 - 2.2.2 Watter plant, A of B, het heel waarskynlik xerofitiese kenmerke? Verduidelik jou antwoord. (4)
 - 2.2.3 Verduidelik die verskil tussen die resultate wat verkry is vir die boonste en onderste oppervlakke van plant B. (2)
 - 2.2.4 Verduidelik hoe die interne temperatuur van plant A beïnvloed sal word indien die onderste oppervlakke van die blare met Vaselien bedek word. (5)
- (13)**

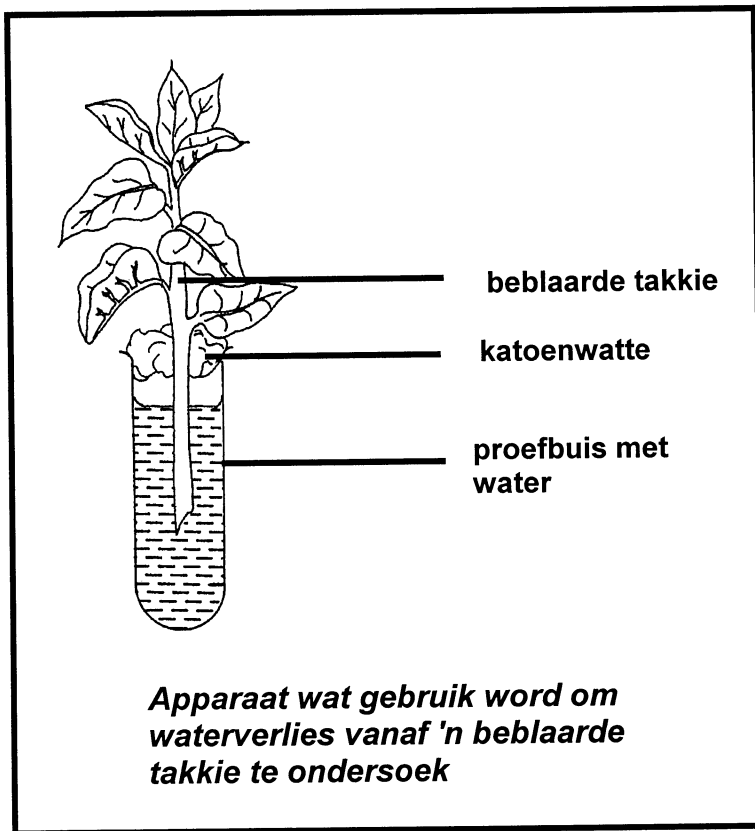
2.2 Study the following graph and answer the questions that follow.

NOTE: Cobalt chloride paper is blue when dry and turns pink when in contact with water.
Both plants, A and B, were exposed to the same environmental conditions.



- 2.2.1 Give a possible aim for the investigation. (2)
- 2.2.2 Which plant, A or B, is likely to have xerophytic properties? Explain your answer. (4)
- 2.2.3 Explain the difference between the results obtained for the upper and the lower surfaces of plant B. (2)
- 2.2.4 Explain how the internal temperature of plant A will be influenced if the lower surfaces of its leaves are covered with Vaseline. (5)
- (13)**

2.3 Bestudeer die volgende diagram en beantwoord die vrae wat volg.



Aan die begin van die ondersoek was die totale massa van die apparaat 150 g. Die apparaat wat in die klaskamer staan is toe met 10 minuut-intervalle oor die volgende 50 minute geweeg. Na 50 minute is die apparaat na buite geneem en die weegproses is vir die volgende 50 minute voortgesit.

Die tabel hieronder toon die verandering in massa van die plant oor tyd.

Tyd (minute)	BINNE						BUITE					
	0	10	20	30	40	50	60	70	80	90	100	
Verandering in massa (g)	0	1	3	4	5	9	11	21	24	33	39	

2.3.1 Trek 'n lyngrafiek van hierdie resultate. (10)

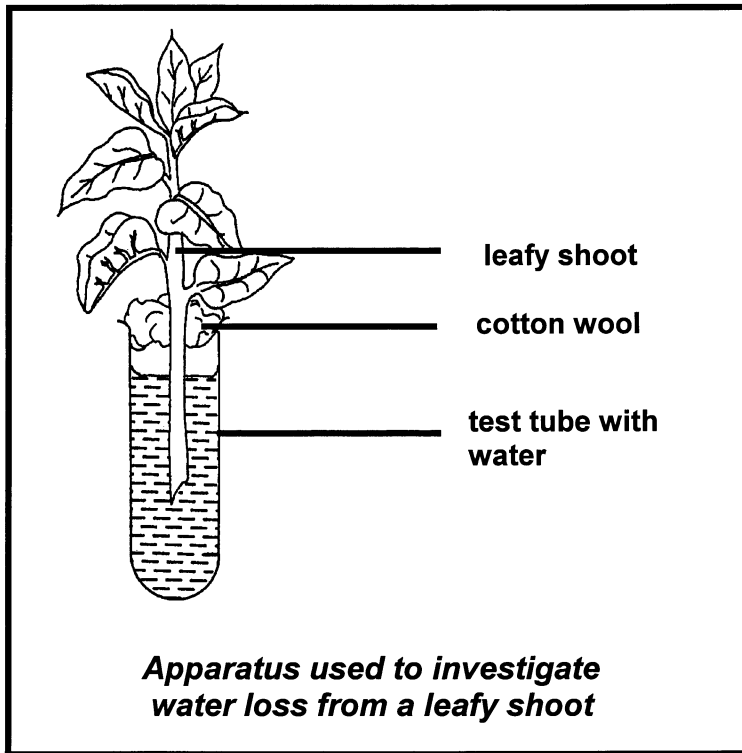
2.3.2 Noem TWEE omgewingsfaktore wat die groter verandering in massa na die 50ste minuut kon veroorsaak het. (2)

2.3.3 Verduidelik EEN manier waarop die betroubaarheid van die resultate verbeter kan word. (2)

(14)

Totaal Vraag 2: 35

2.3 Study the following diagram and answer the questions that follow.



The total mass of the apparatus at the beginning of the investigation was 150 g. The apparatus standing in the classroom was then weighed at 10-minute intervals over the next 50 minutes. After 50 minutes the apparatus was taken outdoors and the weighing continued for another 50 minutes.

The table below shows the change in mass of the plant over time.

	INSIDE						OUTSIDE					
Time (minutes)	0	10	20	30	40	50	60	70	80	90	100	
Change in mass (g)	0	1	3	4	5	9	11	21	24	33	39	

- 2.3.1 Plot a line graph of these results. (10)
 - 2.3.2 List TWO environmental factors that could have caused the greater change in mass after the 50th minute. (2)
 - 2.3.3 Explain ONE way in which the reliability of the results could be improved. (2)
- (14)**

Total Question 2: 35

VRAAG 3

- 3.1 Bestudeer die tabel hieronder wat die vloeitempo en konsentrasie van sekere stowwe toon wat by streke A, B, C en D van die nefron van die menslike nier geneem is.

Deel van nefron	Vloeitempo (cm ³ /min)	Konsentrasies van opgeloste stowwe (g/100 cm ³)				
		Proteïene	Glukose	Natrium-ione	Ammonium-ione	Ureum
A	4	0,0	0,0	0,6	0,04	1,80
B	200	0,0	0,10	0,72	0,0	0,05
C	40	0,0	0,0	0,3	0,0	0,15
D	2 000	7,0	0,10	0,72	0,0	0,05

- 3.1.1 Noem, **met 'n rede**, watter van die dele (A, B, C of D) van die nefron verteenwoordig die volgende: (2)
- (a) Afferente arteriool (2)
- (b) Holte van die kapsel van Bowman (2)
- (c) Boog van Henlé (2)
- (d) Buis van Bellini (2)
- 3.1.2 Verduidelik die verskil in die vloeitempo tussen B en D. (4)
- 3.1.3 Watter afleiding sou jy kon maak indien die waarde vir proteïen in A 0,5 g/100 cm³ was? (2)
- 3.1.4 Verduidelik die rol van die nefron in pH-regulering wanneer die bloed-pH te laag is. (4)
- 3.1.5 Gee TWEE funksies van die niere, met die uitsondering van pH-regulering, wat van die inligting in die tabel afgelei kan word. (2)
- 3.1.6 Sal daar aminosure in A van 'n gesonde persoon teenwoordig wees? Gee EEN rede vir jou antwoord. (2)
- 3.1.7 (a) Noem die anorganiese stof, wat in die tabel getoon word, wat teen 'n konsentrasiegradiënt uit die nierbuisie tot in die medulla van die nier kan beweeg. (1)
- (b) Waarom is dit nodig vir hierdie stof om uit die nierbuisie te beweeg? (2)
- 3.1.8 Verduidelik TWEE maniere waarop die kapsel van Bowman struktureel geskik is vir sy funksie. (4)
- (29)**

QUESTION 3

- 3.1 Study the table below which shows the flow rate and concentration of certain substances taken at regions A, B, C and D of the nephron in the human kidney.

Part of the nephron	Flow rate (cm ³ /min)	Solute concentrations (g/100 cm ³)				
		Proteins	Glucose	Sodium ions	Ammonium ions	Urea
A	4	0,0	0,0	0,6	0,04	1,80
B	200	0,0	0,10	0,72	0,0	0,05
C	40	0,0	0,0	0,3	0,0	0,15
D	2 000	7,0	0,10	0,72	0,0	0,05

- 3.1.1 State, **with a reason**, which of the parts (A, B, C or D) of the nephron represent the following:
- Afferent arteriole (2)
 - Bowman's capsule cavity (2)
 - Loop of Henlé (2)
 - Duct of Bellini (2)
- 3.1.2 Explain the difference in the flow rate between B and D. (4)
- 3.1.3 What conclusion could you make if the value for protein in A was 0,5 g/100 cm³? (2)
- 3.1.4 Explain the role of the nephron in pH regulation when the blood pH is too low. (4)
- 3.1.5 State TWO functions of the kidneys, other than pH regulation, that can be supported by the data given in the table. (2)
- 3.1.6 Will there be amino acids in A in a healthy person? State ONE reason for your answer. (2)
- 3.1.7 (a) Name the inorganic substance, shown in the table, that can pass out against a concentration gradient from the renal tubule into the medullam of the kidney. (1)
- (b) Why is it necessary for this substance to move out of the renal tubule? (2)
- 3.1.8 Explain TWO ways in which the Bowman's capsule is structurally suited for its function. (4)

(29)

3.2 Beantwoord die volgende vrae oor die regulering van water in soogdiere.

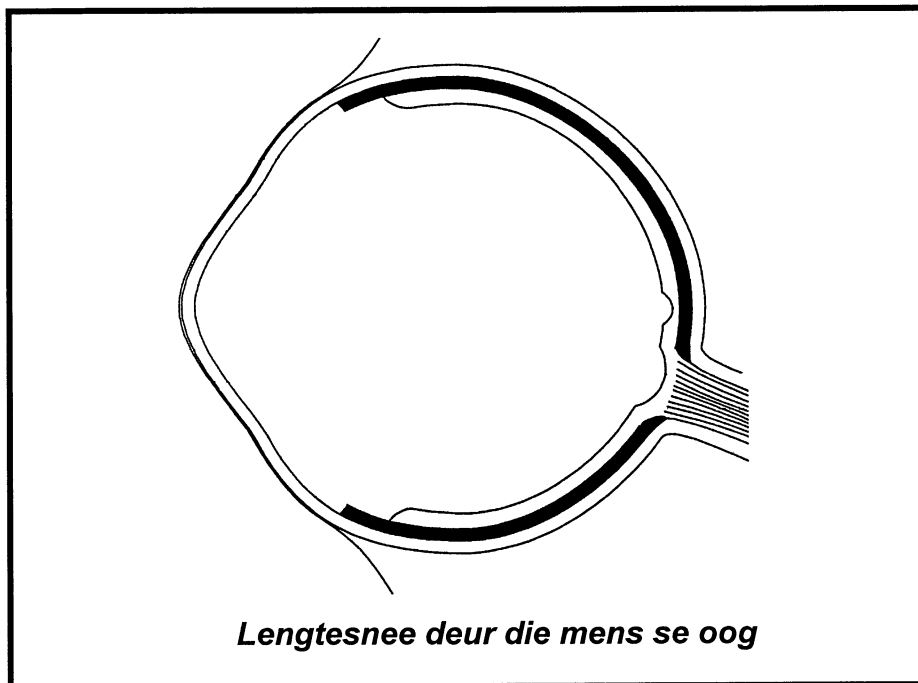
3.2.1 Sal 'n soogdier wat die grootste deel van sy lewe in vars water deurbring, 'n goed ontwikkelde boog van Henlé hê?
Verduidelik jou antwoord. (3)

3.2.2 Sal 'n hoë ADH-konsentrasie die bloeddruk verhoog of verlaag?
Verduidelik jou antwoord. (3)
(6)

Totaal Vraag 3: 35

VRAAG 4

4.1 Bestudeer die volgende diagram en beantwoord die vrae wat volg.



Die strukture wat die oog in staat stel om op voorwerpe te fokus, ontbreek in die diagram hierbo.

Teken 'n lengtesnee deur die **ontbrekende dele** om die voorkoms van hierdie strukture te toon wanneer 'n persoon:

- (a) 'n Boek lees
- (b) Na 'n verafgeleë heuwel kyk (7)

3.2 Answer the following questions on the regulation of water in mammals.

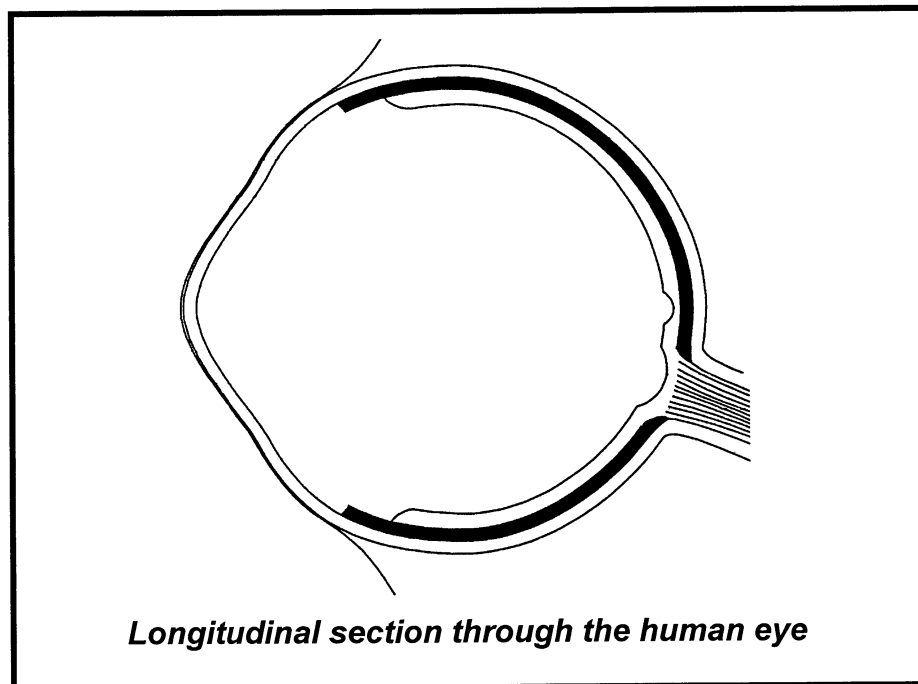
3.2.1 Will a mammal that spends most of its life in fresh water have a well developed loop of Henlé? Explain your answer. (3)

3.2.2 Will a high ADH concentration increase or decrease blood pressure? Explain your answer. (3)
(6)

Total Question 3: 35

QUESTION 4

4.1 Study the following diagram and answer the questions that follow.

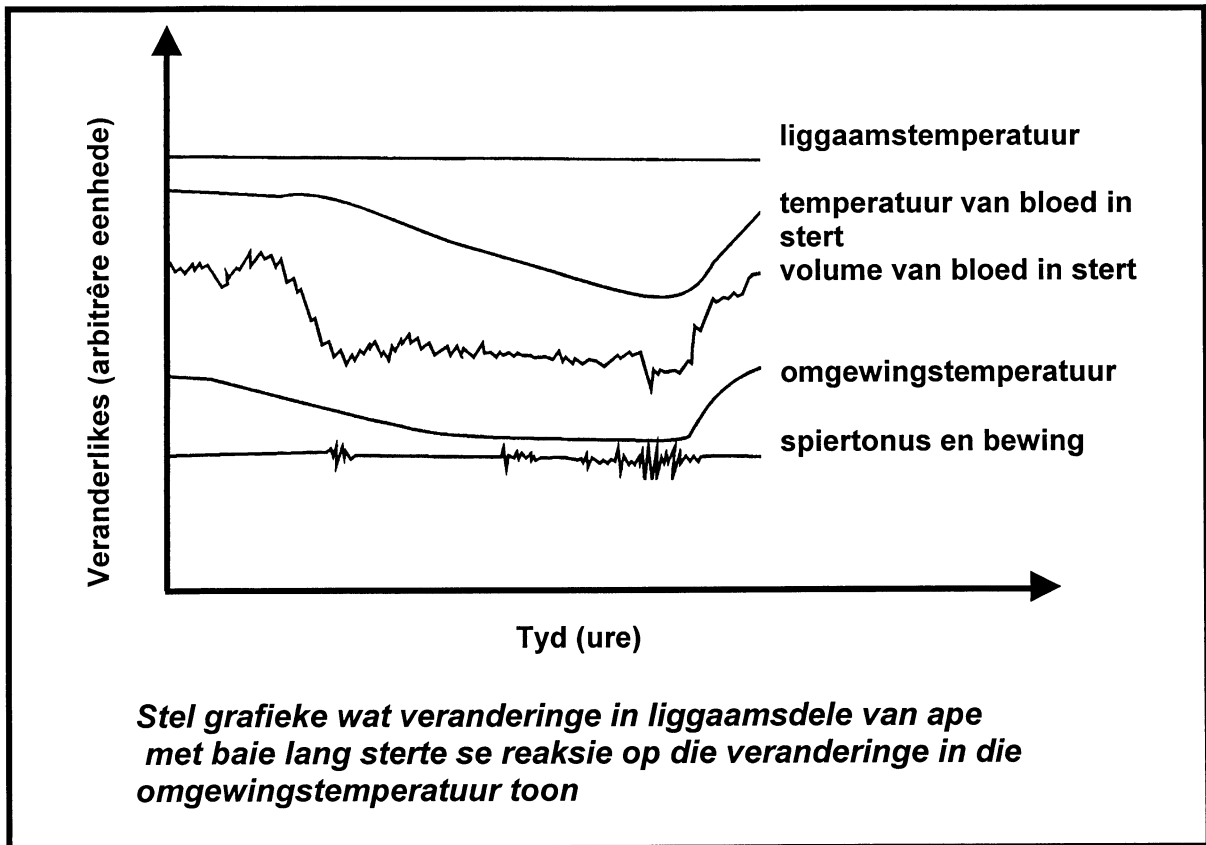


The structures which enable the eye to focus on objects are missing in the above diagram.

Draw a longitudinal section through the **missing parts** to indicate the appearance of these structures when a person is:

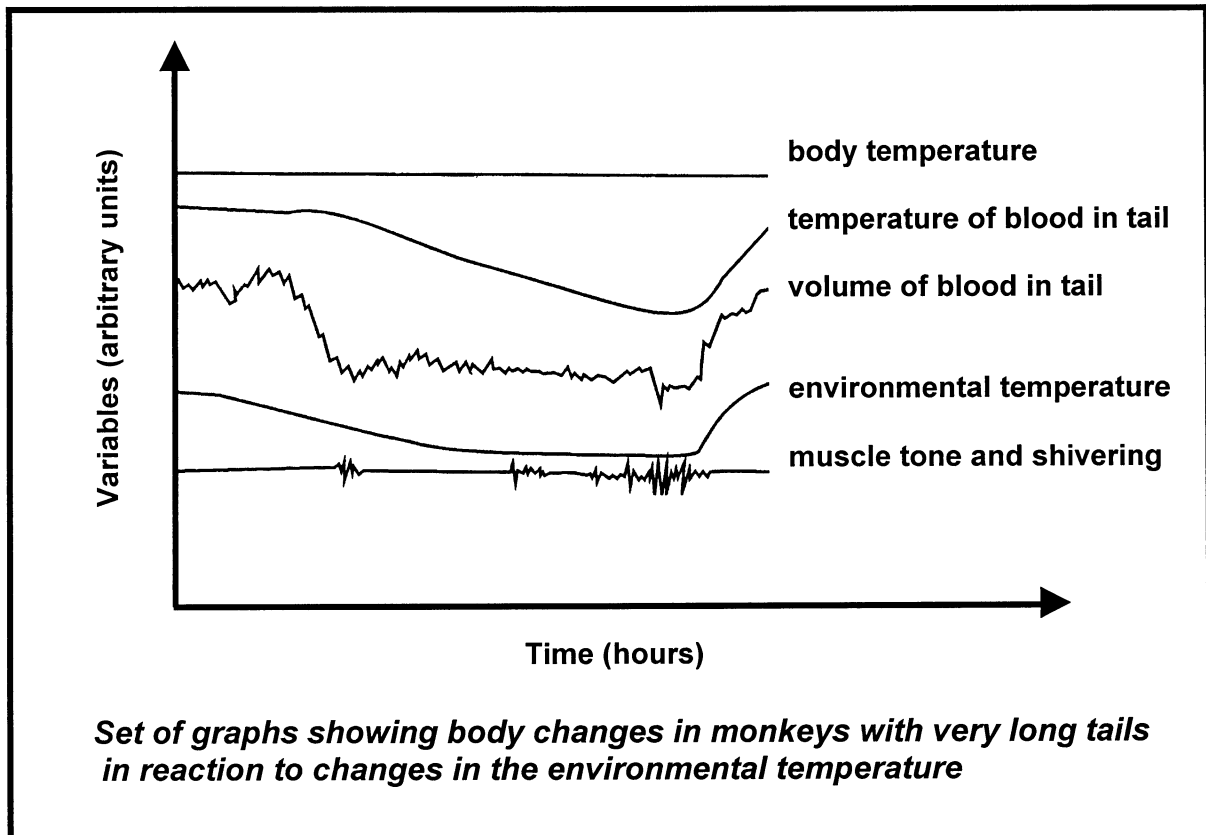
- (a) Reading a book
- (b) Looking at a distant hill (7)

4.2 Gebruik die volgende grafieke en jou kennis van termoregulering in diere om die vrae te beantwoord.



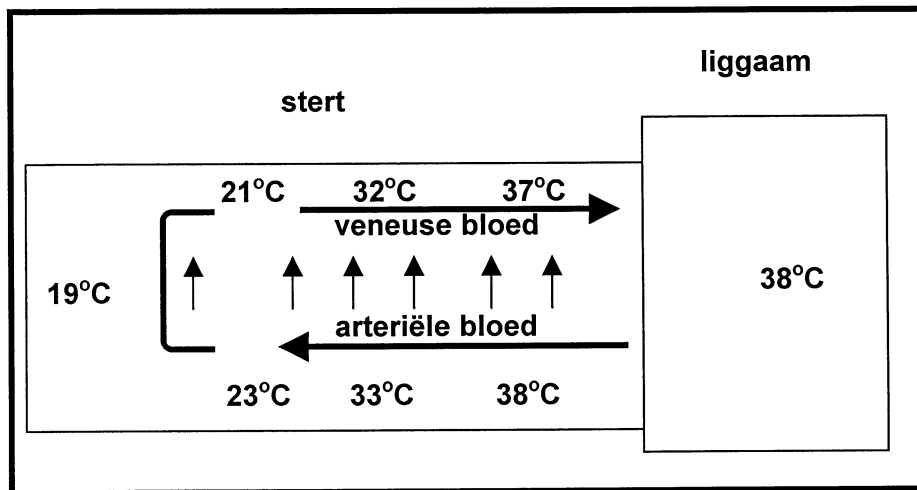
- 4.2.1 Is ape endotermiese of ektotermiese diere? (1)
- 4.2.2 Wat is die verwantskap tussen die temperatuur van die bloed in die stert en die volume van die bloed in die stert? (1)
- 4.2.3 Verduidelik waarom daar 'n verhoogde spiertonus en beweging is wanneer die omgewingstemperatuur laag is. (4)

- 4.2 Use the following graphs and your knowledge of thermoregulation in animals to answer the questions.



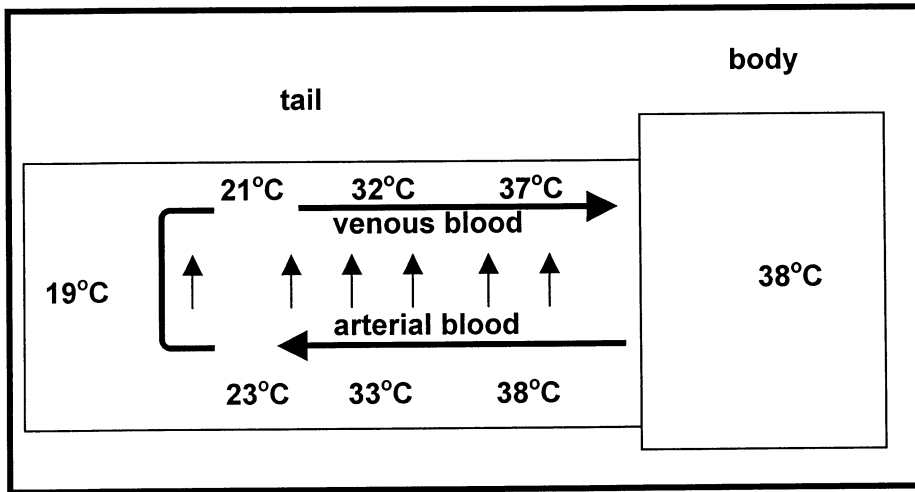
- 4.2.1 Are monkeys endothermic or ectothermic animals? (1)
- 4.2.2 What is the relationship between the temperature of the blood in the tail and the volume of the blood in the tail? (1)
- 4.2.3 Explain why there is an increased muscle tone and shivering when the environmental temperature is low. (4)

4.2.4 Die volgende diagram toon 'n proses wat by die basis van die stert van die ape plaasvind.



- (a) Noem die meganisme wat deur die diagram geïllustreer word. (1)
- (b) Verduidelik TWEE beginsels waarop die meganisme genoem by VRAAG 4.2.4(a), funksioneer. (4)
- (c) Waarom is dit verkieslik om 'n laer bloedtemperatuur in die stert te hê as in die res van die liggaam in koue weer? (4)
- (15)**
- 4.3 Verduidelik die rol van kleur by die termoregulering van sommige reptiele wanneer die omgewingstemperatuur hoog is. (3)

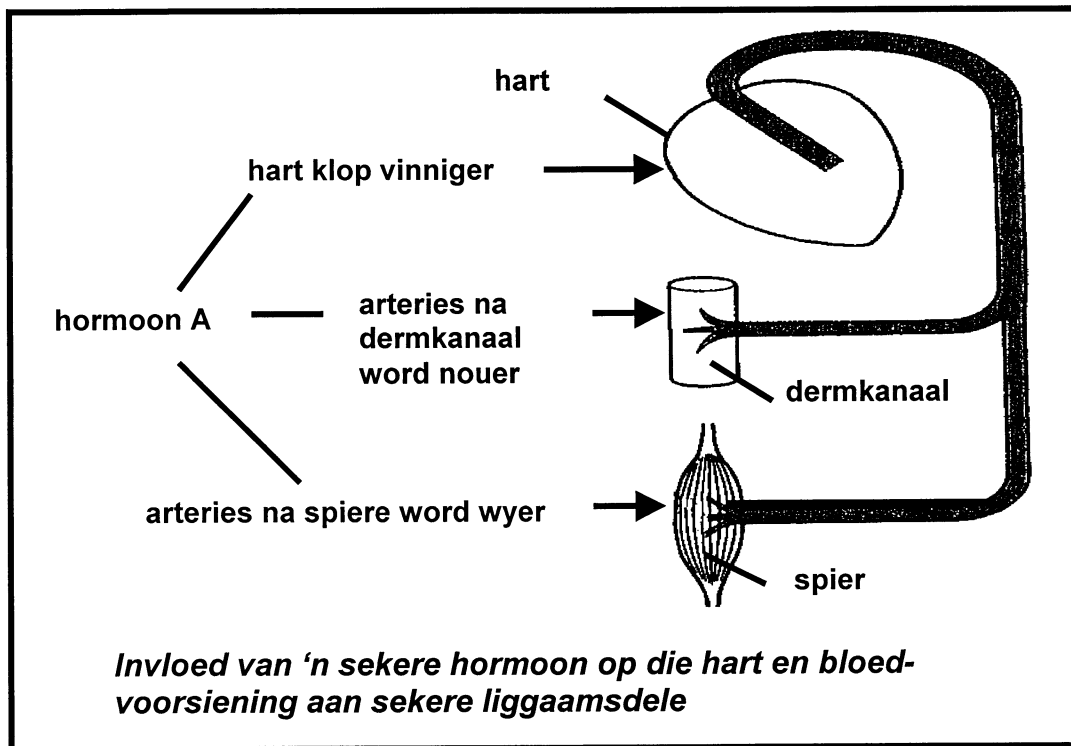
4.2.4 The following diagram shows a process that takes place at the base of the tail of the monkeys.



- (a) Name the mechanism illustrated by the diagram. (1)
 - (b) Explain TWO principles upon which the mechanism named in QUESTION 4.2.4(a) operates. (4)
 - (c) Why is it advisable to have a lower temperature of blood in the tail than in the rest of the body in cold weather? (4)
- (15)**

4.3 Explain the role of colour in the thermoregulation of some reptiles when the environmental temperature is high. (3)

- 4.4 Die volgende diagram toon hoe 'n sekere hormoon die bloedsirkulasie van 'n persoon in 'n noodgeval beïnvloed.

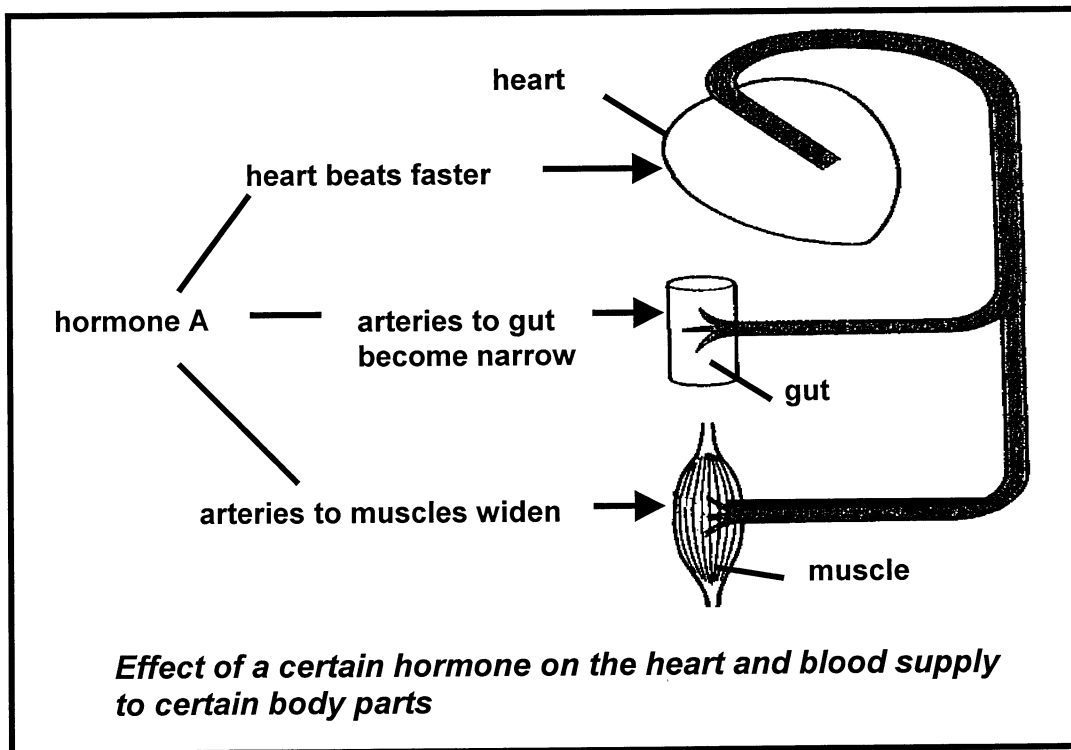


- 4.4.1 Gee die naam van hormoon A. (1)
- 4.4.2 Gee die posisie van die klier in die menslike liggaam wat hormoon A afskei. (1)
- 4.4.3 Verduidelik die belangrikheid van die vernouing van die arteries na die dermkanaal onder noodtoestande. (4)
- 4.4.4 Noem die deel van die menslike oog wat ook deur hormoon A beïnvloed word. (1)
- 4.4.5 Verduidelik die uitwerking van hormoon A op die deel genoem by VRAAG 4.4.4. (3)
- (10)**

Totaal Vraag 4: 35

TOTAAL AFDELING B: 105

- 4.4 The following diagram shows how a certain hormone affects the blood circulation of a person in an emergency.



- 4.4.1 Give the name of hormone A. (1)
- 4.4.2 State the position of the gland that secretes hormone A in the human body. (1)
- 4.4.3 Explain the importance of the narrowing of the arteries to the gut under emergency conditions. (4)
- 4.4.4 Name the part of the human eye that is also affected by hormone A. (1)
- 4.4.5 Explain the influence of hormone A on the part named in QUESTION 4.4.4. (3)
- (10)**

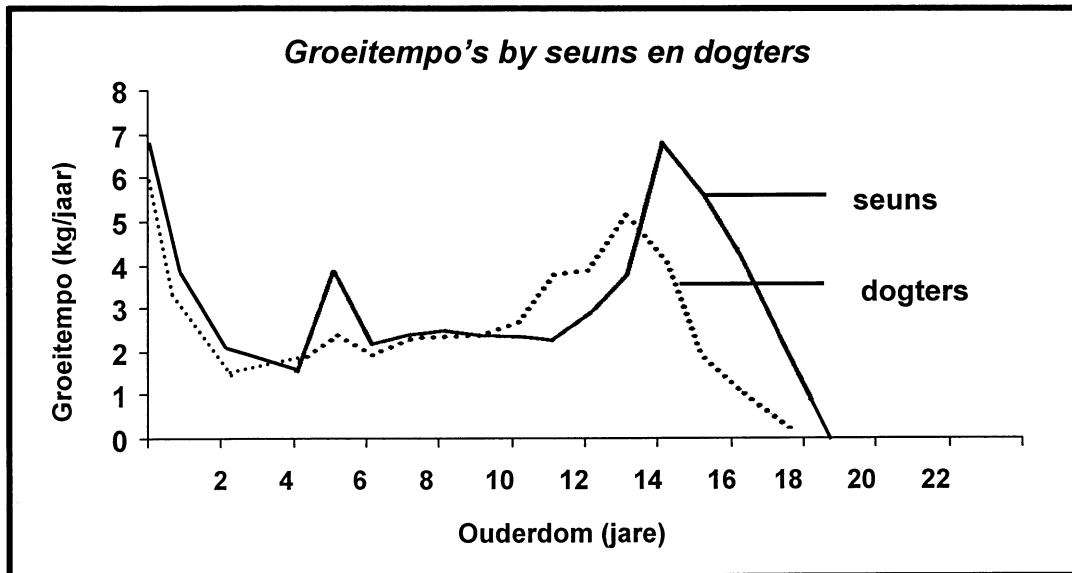
Total Question 4: 35

TOTAL SECTION B: 105

AFDELING C

VRAAG 5

5.1 Bestudeer die volgende grafiek en beantwoord die vrae wat volg.

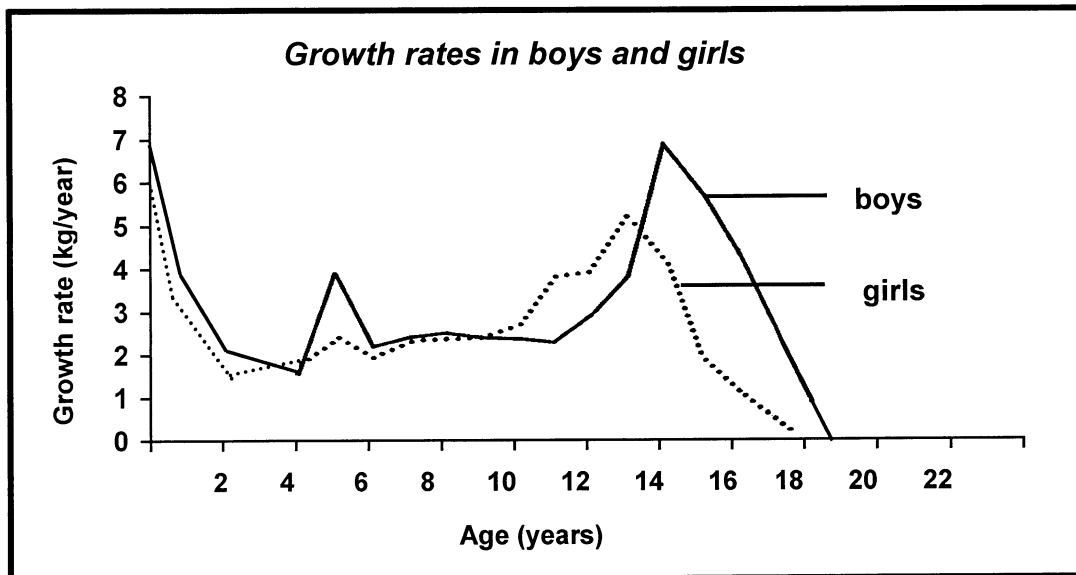


- 5.1.1 Tussen watter twee jare het die groeitempo vir seuns en dogters die meeste afgeneem? (2)
- 5.1.2 Bereken die afname in groeitempo vir dogters gedurende die periode by VRAAG 5.1.1 genoem. (2)
- 5.1.3 Skryf die ouderdom waarby die groeitempo 'n maksimum vir seuns en dogters onderskeidelik bereik het. (3)
- 5.1.4 Tussen watter twee jare was die groeitempo by dogters aansienlik hoër as dié van die seuns? (2)
- 5.1.5 Noem EEN hormoon wat betrokke is by die groei van mense. (1)
- 5.1.6 Teen watter ouderdom, in jare, het die dogters hulle finale volwassenheids grootte bereik? (1)
- 5.1.7 Beskryf die verskille in groei by mans en vroue tussen die ouderdom van vier jaar en volwassenheid. (6)
- (17)**

SECTION C

QUESTION 5

5.1 Study the following graph and answer the questions that follow.



- 5.1.1 Between which two years did the growth rate for boys and girls slow down the most? (2)
 - 5.1.2 Calculate the decrease in growth rate of girls during the period mentioned in QUESTION 5.1.1. (2)
 - 5.1.3 Write the age at which the growth rate for boys and girls respectively, has reached a maximum. (3)
 - 5.1.4 Between which two years was the growth rate in girls significantly higher than that of boys? (2)
 - 5.1.5 List ONE hormone involved in human growth. (1)
 - 5.1.6 At what age, in years, did the girls reach their final adult size? (1)
 - 5.1.7 Describe the differences between growth in males and females between the age of four years and maturity. (6)
- (17)**

- 5.2 Bespreek die begrip homeostase deur te verwys na die rol wat die pituïtêre klier, die tiroïedklier en die outonome senuweestelsel speel in die regulering van die metaboliese tempo van die liggaam.

Feitelike inhoud: (15)
Sintese: (3)
(18)

Totaal Vraag 5: 35

TOTAAL AFDELING C: 35

GROOTTOTAAL: 200

- 5.2 Discuss the concept of homeostasis by referring to the role played by the pituitary gland, the thyroid gland and the autonomic nervous system in regulating the metabolic rate of the body.

Factual content: (15)
Synthesis: (3)
(18)

Total Question 5: 35

TOTAL SECTION C: 35

GRAND TOTAL: 200