



DEPARTMENT OF EDUCATION  
REPUBLIC OF SOUTH AFRICA

DEPARTEMENT VAN ONDERWYS  
REPUBLIEK VAN SUID-AFRIKA

**SENIOR CERTIFICATE EXAMINATION - 2005**  
**SENIORSERTIFIKAAT-EKSAMEN - 2005**

**BIOLOGY P1**  
**BIOLOGIE V1**

**STANDARD GRADE**  
**STANDAARDGRAAD**

**FEBRUARY/MARCH 2005**  
**FEBRUARIE/MAART 2005**

**306-2/1**

BIOLOGY SG: Paper 1

**Marks: 150**  
**Punte : 150**



**2 Hours**  
**2 Ure**

**This question paper consists of 16 pages.**  
**Hierdie vraestel bestaan uit 16 bladsye.**

**X05**



**INSTRUKSIES EN INLIGTING AAN KANDIDATE**

Lees die volgende sorgvuldig 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 die vrae nie beantwoord word volgens die instruksies by elke vraag nie, sal kandidate punte verbeur.
7. Alle tekeninge moet met 'n potlood gemaak word en die byskrifte met ink.
8. Gebruik diagramme en vloeddiagramme slegs wanneer dit versoek word.
9. Die diagramme in die vraestel is nie noodwendig volgens skaal geteken nie.
10. Grafiekpapier mag NIE gebruik word 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 use 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 Tydens inaseming by soogdiere, sal die ...
- A diafragma meer gebuig raak.
  - B borsholte vergroot.
  - C volume van die borsholte verklein.
  - D druk in die borsholte verhoog.
- 1.1.2 Anorexia nervosa verwys na 'n ...
- A gebreksiekte wat ontstaan as gevolg van die daaglikse inname van vet.
  - B senuwee-ineenstorting as gevolg van 'n gebrek aan vitamieene in die dieet.
  - C sielkundige toestand waartydens 'n persoon weier om gebalanseerd te eet selfs al is voedsel beskikbaar.
  - D gebreksiekte as gevolg van 'n tekort aan proteïene in die dieet.
- 1.1.3 Watter van die volgende is die korrekte volgorde waarin gestoorde voedingstowwe deur die menslike liggaam tydens hongersnood gebruik word?
- A Koolhidrate, proteïene, vette
  - B Vette, koolhidrate, proteïene
  - C Vette, proteïene, koolhidrate
  - D Koolhidrate, vette, proteïene
- 1.1.4 Watter EEN van die volgende is die setel van fotosintese in plantselle? Die ...
- A mitochondrion.
  - B chloroplast.
  - C selkern.
  - D sitoplasma.
- 1.1.5 Die proses van respirasie in groen plante vind plaas ...
- A hoofsaaklik gedurende die dag.
  - B hoofsaaklik gedurende die nag.
  - C gedurende die dag en die nag.
  - D slegs tydens hoë humiditeit.

**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 During inhalation in mammals, the ...
- A diaphragm becomes more curved.
  - B rib cage expands.
  - C volume of the thoracic cavity decreases.
  - D pressure in the thoracic cavity increases.
- 1.1.2 Anorexia nervosa refers to a...
- A deficiency disease resulting from daily intake of fat.
  - B nervous breakdown as a result of lack of vitamins in the diet.
  - C psychological condition when a person refuses to eat a balanced diet even when food is available.
  - D deficiency disease as a result of lack of protein in the diet.
- 1.1.3 Which of the following is the correct order in which stored food substances in humans are utilised by the body during starvation?
- A Carbohydrates, proteins, fats
  - B Fats, carbohydrates, proteins
  - C Fats, proteins, carbohydrates
  - D Carbohydrates, fats, proteins
- 1.1.4 Which ONE of the following is the site of photosynthesis in plant cells? The ...
- A mitochondrion.
  - B chloroplast.
  - C nucleus.
  - D cytoplasm.
- 1.1.5 The process of respiration in green plants occurs ...
- A mainly during the day.
  - B mainly during the night.
  - C during day and night.
  - D only during high humidity.

1.1.6 Watter EEN van die volgende koolhidrate word in die spiere en lewer van soogdiere gestoor?

- A Gliserol
- B Glikogeen
- C Sellulose
- D Stysel

1.1.7 Vitamiene by mense is noodsaaklik ...

- A om 'n goiter te voorkom.
- B as 'n bron van energie vir sellulêre respirasie.
- C om te help met ensiemaktiwiteit.
- D as 'n boustof van menslike selle.

(7 x 2) (14)

1.2 Gee die korrekte **biologiese term** vir elk van die volgende beskrywings. Skryf slegs die **term** langs die toepaslike vraagnommer.

1.2.1 'n Beskermende membraan wat die longe omring

1.2.2 Die chemiese element in hemoglobien wat noodsaaklik is vir die vervoer van suurstof

1.2.3 Die tipe epiteel in die binnekant van die tragea

1.2.4 Die proses waardeur vette in klein vetdruppeltjies opgebreek word

1.2.5 Die proses waardeur verteerde voedsel deel van die liggaam van die organisme word

1.2.6 Die proses in plante waartydens stralingsenergie na chemiese energie omgeskakel word

1.2.7 Die groen pigment in blare wat stralingsenergie absorbeer

(7)

1.1.6 Which ONE of the following carbohydrates is stored in the mammalian muscle and liver?

- A Glycerol
- B Glycogen
- C Cellulose
- D Starch

1.1.7 Vitamins in humans are required ...

- A to prevent goitre.
- B as a source of energy for cellular respiration.
- C to assist enzyme activity.
- D as a building material for body cells.

(7 x 2) (14)

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 A protective membrane surrounding the lungs

1.2.2 The chemical element in haemoglobin essential for the transport of oxygen

1.2.3 The type of epithelium on the inside of the trachea

1.2.4 The process of breaking up of fat into tiny fat droplets

1.2.5 The process by which digested food becomes part of the body of an organism

1.2.6 The process in plants during which radiant energy is converted into chemical energy

1.2.7 The green pigment in leaves which absorbs radiant energy

(7)

1.3 Pas die stellings in KOLOM I by die items in KOLOM II. Skryf slegs die **letter** van die korrekte antwoord langs die toepaslike vraagnommer neer.

KOLOM I	KOLOM II
1.3.1 Die setel van respirasie	A Larinks
1.3.2 Verwarm, bevogtig en filtreer lug	B Silia
1.3.3 Bring klanke voort	C Lewerpoortaar
1.3.4 Vervoer geabsorbeerde glukose na die lewer	D Neusholte
1.3.5 'n Organiese verbinding wat tydelik aan 'n ensiem verbind is	E Hidrolise
1.3.6 Eenvoudige suikers wat tydens fotosintese in groen plante gevorm word	F Mitochondrion
1.3.7 The chemiese afbreek van groot molekules na kleiner molekules met die byvoeging van water	G Koënsiem
	H Glukose
	I Kondensasie

(7 x 2) (14)

1.4 Die onderstaande tabel toon die resultate van 'n ondersoek wat uitgevoer is om die tempo van ensiemgekontroleerde reaksies by verskillende pH-waardes te bepaal.

pH	1	2	3	4	5	6
<b>Tempo van die reaksie in arbitrêre eenhede</b>	9	12	7	4	2	0

1.4.1 Noem die pH waarby die ensiem:

(a) Die aktiefste was (2)

(b) Geheel en al onaktief was (2)

1.4.2 In watter deel van die menslike spysverteringskanaal sal die ensiem die beste werk? (1)



- 1.3 Match the statements in COLUMN I with the items in COLUMN II. Write only the **letter** of the correct answer next to the relevant question number.

COLUMN I	COLUMN II
1.3.1 The site of respiration	A Larynx
1.3.2 Warms, moistens and filters air	B Cilia
1.3.3 Produces sound	C Hepatic portal vein
1.3.4 Transports absorbed glucose to the liver	D Nasal cavity
1.3.5 An organic compound that is temporarily bound to an enzyme	E Hydrolysis
1.3.6 Simple sugars formed during photosynthesis in green plants	F Mitochondrion
1.3.7 The chemical break down of large molecules into simpler ones with the addition of water	G Co-enzyme
	H Glucose
	I Condensation

(7 x 2)

**(14)**

- 1.4 The table below shows the results of an investigation that was carried out to determine the rate of an enzyme-controlled reaction at different pH values.

pH	1	2	3	4	5	6
<b>Rate of reaction in arbitrary units</b>	9	12	7	4	2	0

- 1.4.1 State the pH at which the enzyme:

(a) Worked the best (2)

(b) Did not work at all (2)

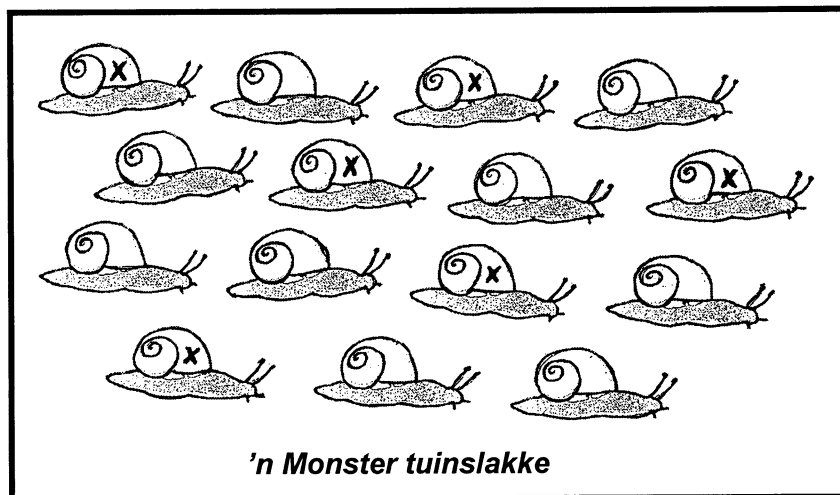
- 1.4.2 In which part of the human alimentary canal will this enzyme work best? (1)

1.4.3 Noem die stof wat verantwoordelik is vir die pH van die gedeelte genoem in VRAAG 1.4.2. (1)

1.4.4 Noem TWEE ander faktore wat die ensiemaktiwiteit kon beïnvloed het. (2)

(8)

1.5 In 'n ondersoek om die grootte van 'n slakbevolking in 'n tuin te bepaal, is slakke ewekansig versamel. Elkeen is met 'n X gemerk en toe terug in die tuin geplaas. Na een week, is 'n tweede ewekansige monster slakke in dieselfde tuin versamel. Die onderstaande diagram toon die tweede monster slakke wat versamel is.



1.5.1 Noem die indirekte metode wat gebruik is om die grootte van die slakbevolking wat tydens die ondersoek gebruik is, te skat. (1)

1.5.2 Stel EEN manier voor waarop hulle gemerk is. (1)

1.5.3 Hoeveel slakke is in bostaande monster gemerk? (1)

1.5.4 Watter van die volgende voorsorgmaatreëls moet altyd getref word wanneer daar van die indirekte metode genoem in VRAAG 1.5.1, gebruik gemaak word? Skryf slegs die letter(s) van jou keuse.

A Die slakke moet nadat hulle gemerk is, toegelaat word om met mekaar te meng.

B Die gemiddelde van verskeie monsters moet nie bereken word nie.

C Emigrasie en migrasie moet toegelaat word om plaas te vind.

D Die merk moet vir die hele duur van die ondersoek sigbaar wees.

E Die merk behoort die dier se bewegings te strem. (4)

(7)

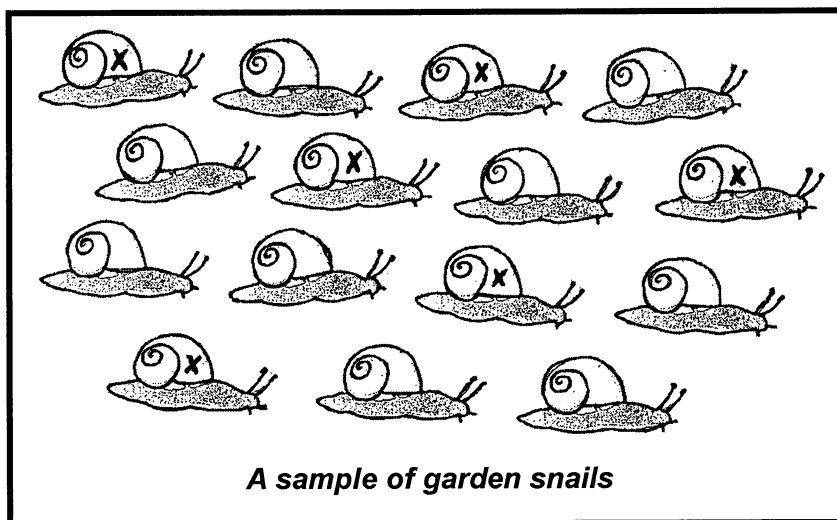
**Totaal Vraag 1: 50**  
**TOTAAL AFDELING A: 50**

1.4.3 Name the substance that gives this part named in QUESTION 1.4.2, this pH. (1)

1.4.4 Name TWO other factors that could have affected the activity of this enzyme. (2)  
(8)

1.5 In an investigation to determine the size of the snail population in a garden, snails were collected at random. Each one was marked with an X and then returned to the garden. After one week, a second random selection of snails was collected.

The diagram below shows the snails that were caught during the second selection.



1.5.1 Name the indirect technique that was used to estimate the population of snails in this investigation. (1)

1.5.2 Suggest ONE way in which they were marked. (1)

1.5.3 How many snails were marked in the above sample? (1)

1.5.4 Which of the following precautions should always be taken whenever the indirect technique mentioned in QUESTION 1.5.1 is used? Write only the letter(s) of your choice.

A The snails should be allowed to mix with each other after marking.

B The average of several samples should not be calculated.

C Emigration and migration should be allowed to occur.

D The mark should last for the entire period of investigation.

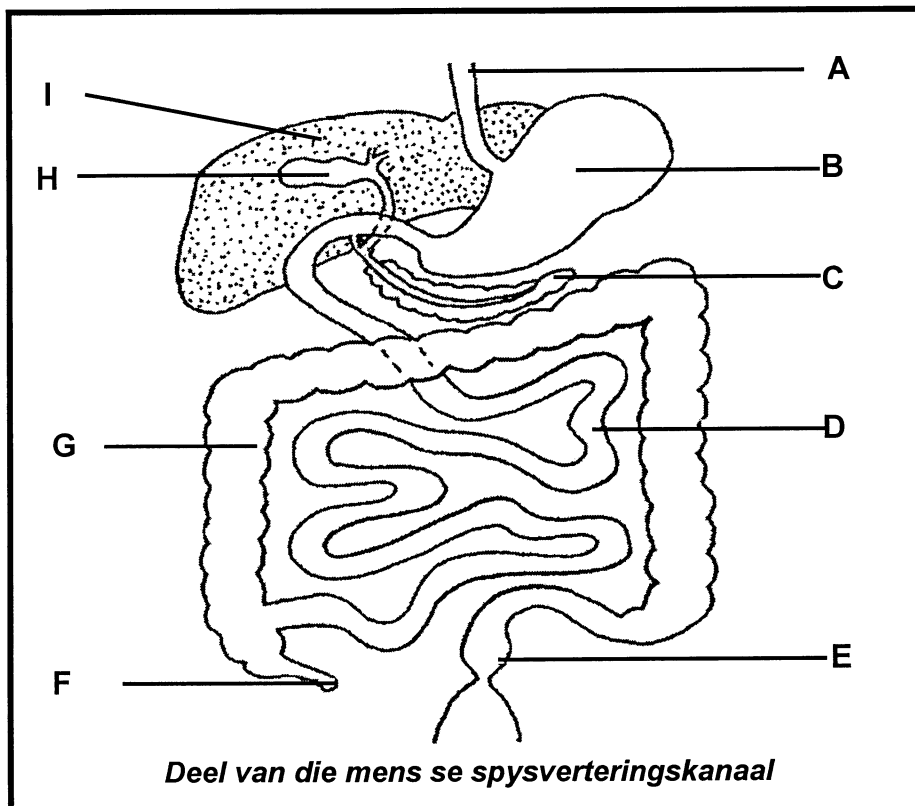
E The mark should affect the animal's movement. (4)  
(7)

**Total Question 1: 50**  
**TOTAL SECTION A: 50**

## AFDELING B

## VRAAG 2

2.1 Bestudeer onderstaande diagram en beantwoord die vrae wat volg.

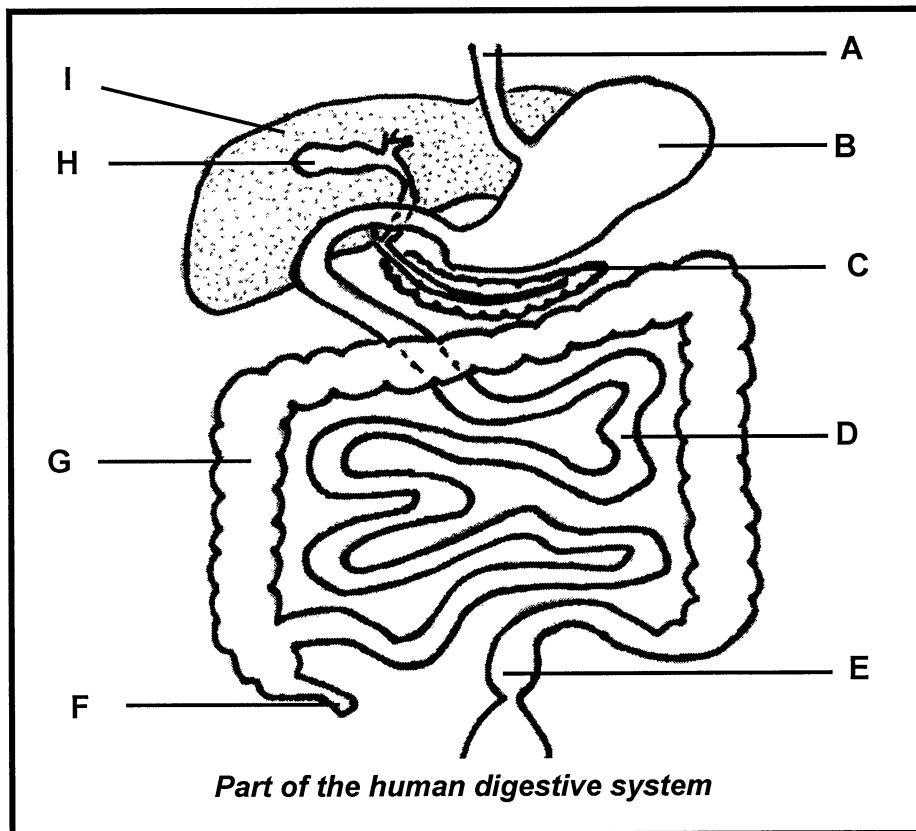


- 2.1.1 Benoem dele A, E, F en H. (4)
- 2.1.2 Noem DRIE funksies van orgaan I in voeding. (3)
- 2.1.3 Skryf die **letter** van die deel:
- (a) Wat beide 'n eksokriene en 'n endokriene klier verteenwoordig (1)
  - (b) Waar proteïenvertering begin (1)
  - (c) Waar die meeste van die water en minerale soute geabsorbeer word (1)
  - (d) Wat gal berg (1)
- 2.1.4 Verduidelik DRIE maniere waarop deel D geskik is om sy funksie te verrig. (6)
- (17)**

## SECTION B

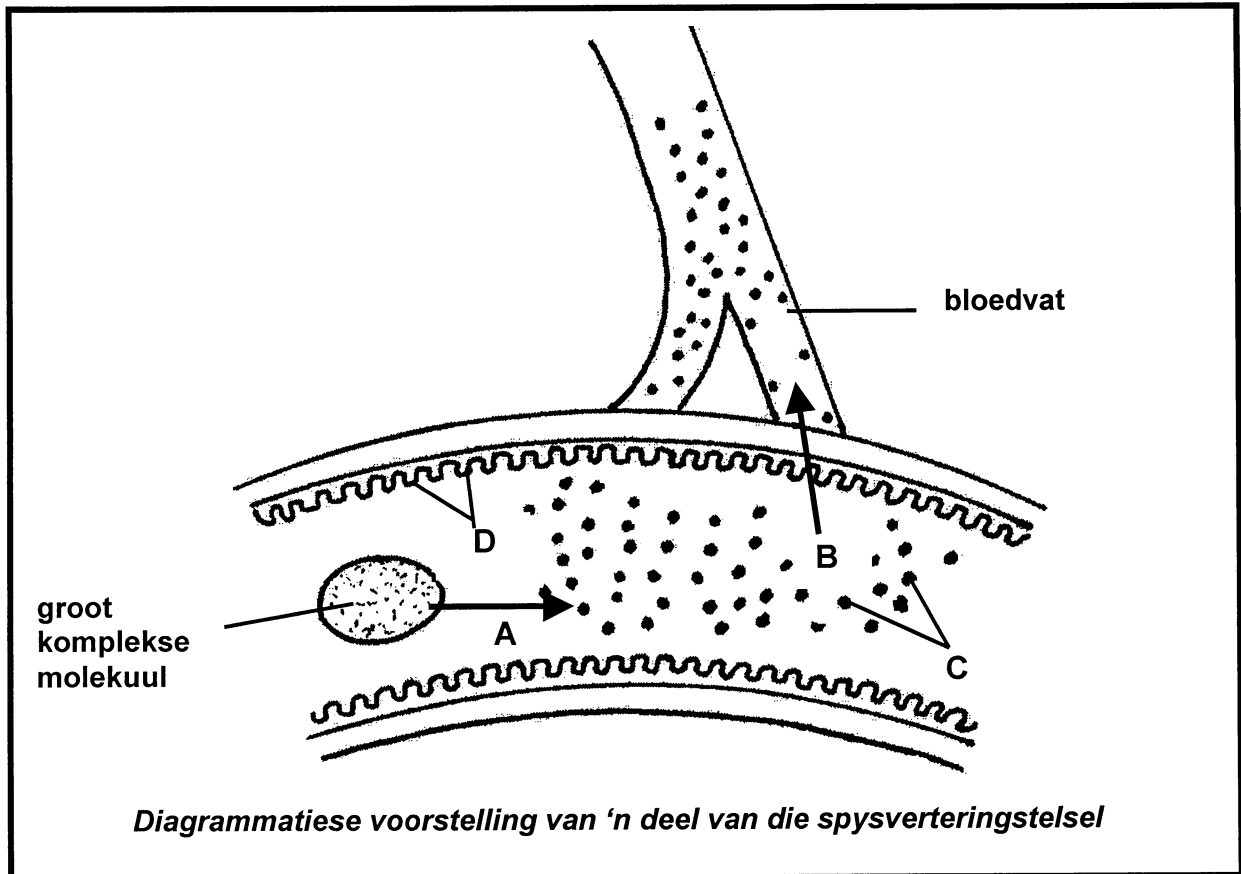
## QUESTION 2

2.1 Study the diagram below and answer the questions that follow.



- 2.1.1 Label parts A, E, F and H. (4)
- 2.1.2 State THREE functions of organ I in nutrition. (3)
- 2.1.3 Write the **letter** of the part:
- (a) That represents both an endocrine and exocrine gland (1)
  - (b) Where protein digestion begins (1)
  - (c) Where most water and mineral salts are absorbed (1)
  - (d) That stores bile (1)
- 2.1.4 Explain THREE ways in which part D is suited for its function. (6)
- (17)**

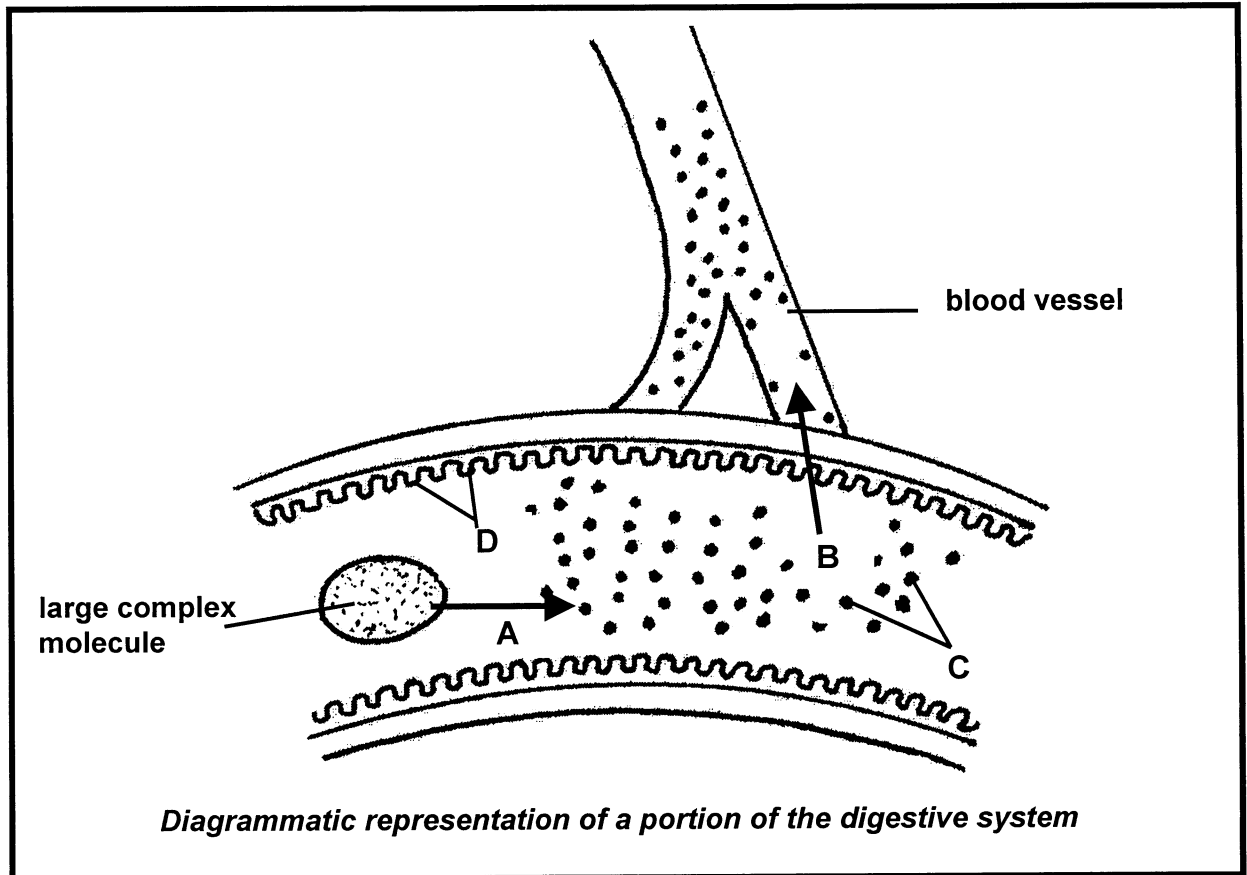
2.2 Bestudeer onderstaande diagram en beantwoord dan die vrae wat volg.



- 2.2.1 Noem die prosesse wat voorgestel word deur pyle:
- (a) A (1)
- (b) B (1)
- 2.2.2 Verduidelik die rol van water in proses B. (2)
- 2.2.3 Identifiseer die vingeragtige uitgroeisels wat op D aangetref word. (1)
- 2.2.4 As die groot, komplekse molekule 'n proteïen is, benoem molekules C. (1)
- 2.2.5 Verduidelik wat met 'n oormaat molekules C in die liggaam gebeur. (2)
- (8)**

**Totaal Vraag 2: 25**

2.2 Study the diagram below and then answer the questions that follow.



2.2.1 Name the processes represented by arrows:

(a) A (1)

(b) B (1)

2.2.2 Explain the role of water in process B. (2)

2.2.3 Identify the finger-like projections found on D. (1)

2.2.4 If the large, complex molecule is a protein, name molecules C. (1)

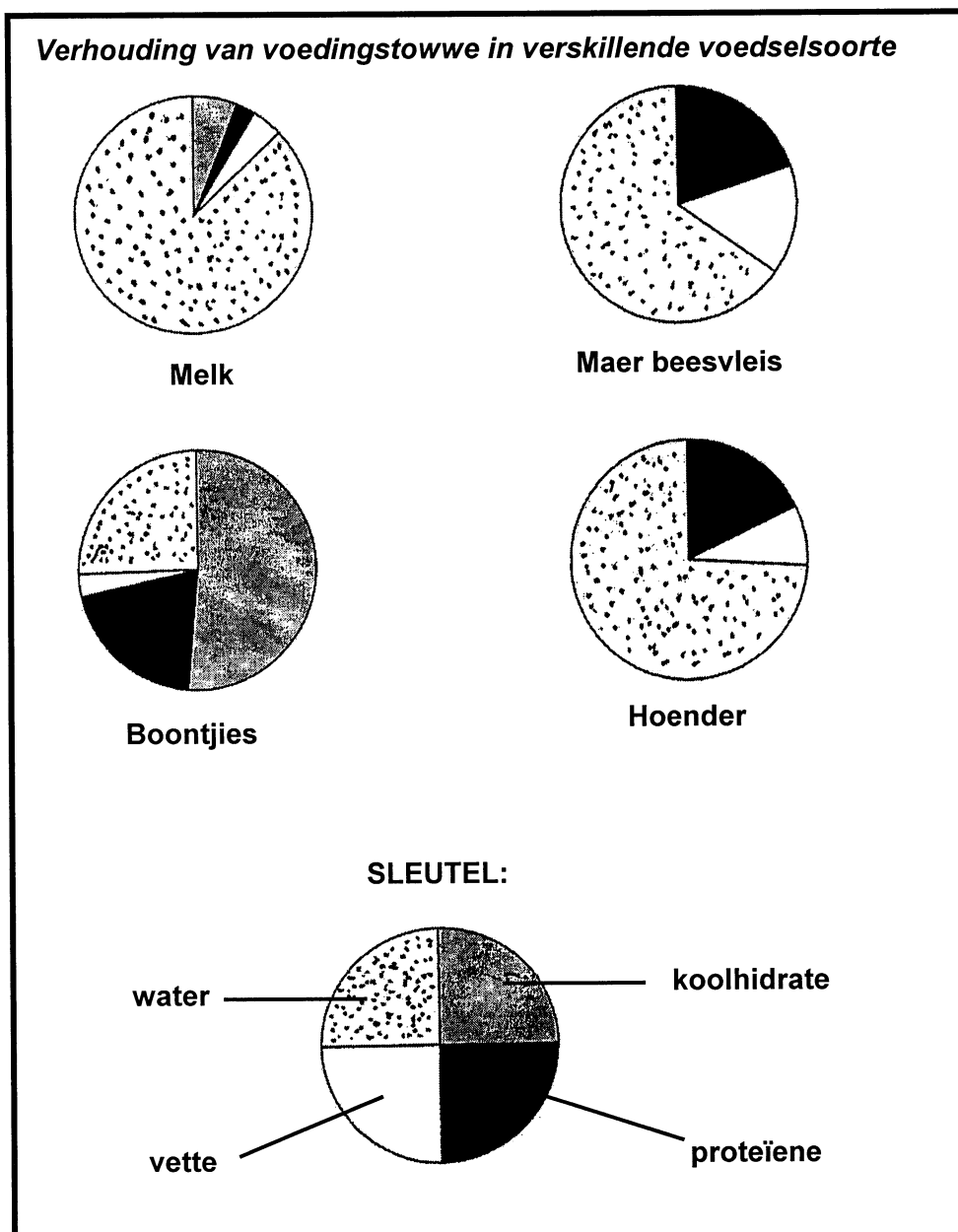
2.2.5 Explain what happens to the excess of molecules C in the body. (2)

(8)

**Total Question 2: 25**

## VRAAG 3

3.1 Bestudeer onderstaande sirkelgrafieke en beantwoord dan die vrae wat volg.



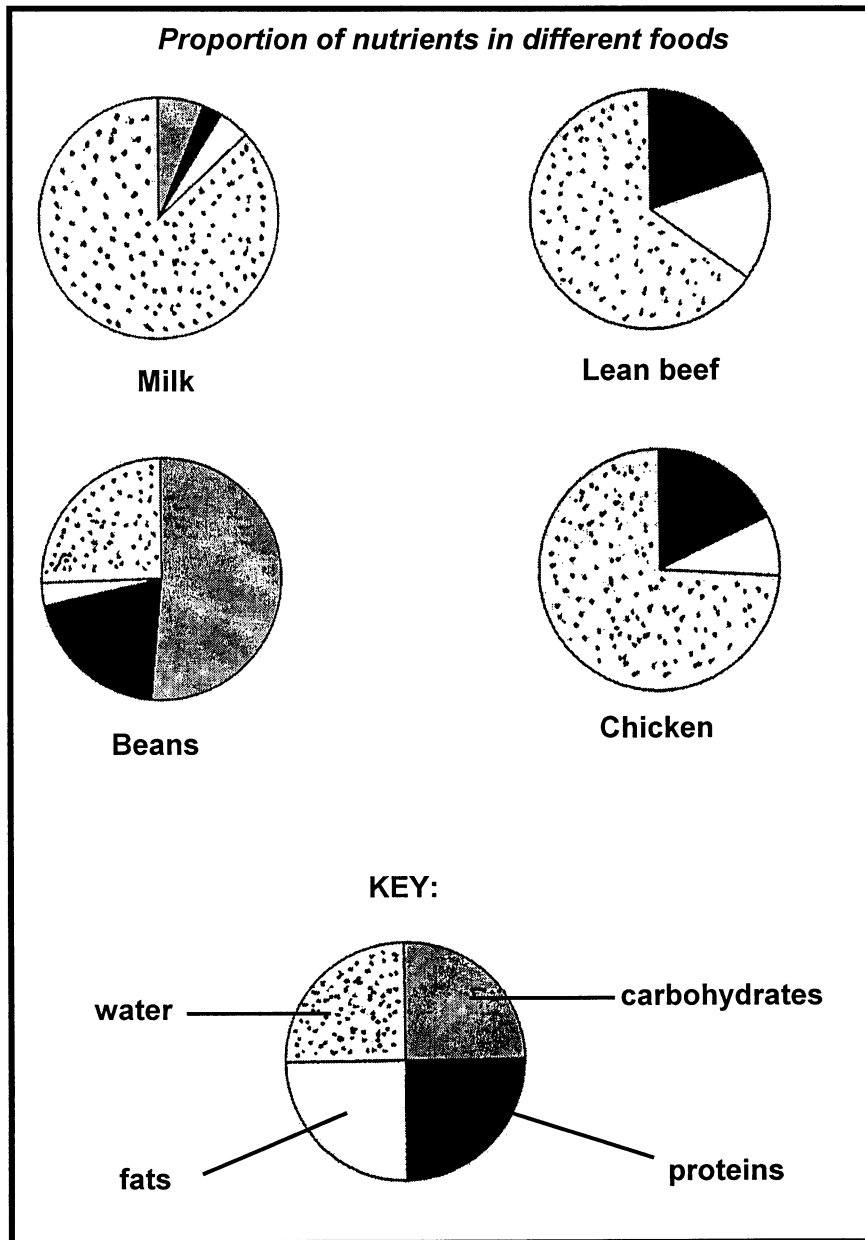
3.1.1 Noem:

- (a) TWEE voedselsoorte, wat die **geskikste** sal wees vir die vorming van selmembrane (2)
- (b) EEN voedselsoort, wat die **minste** geskik is as 'n energeryke reserwebrandstofbron (1)



**QUESTION 3**

3.1 Study the pie charts below and then answer the questions that follow.



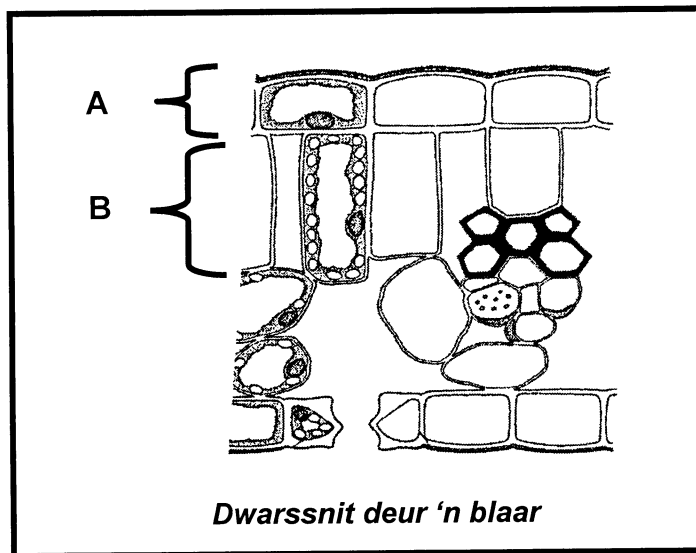
3.1.1 Name:

- (a) TWO foods, which will be **most** suitable for the formation of cell membranes (2)
- (b) ONE food, which is the **least** suitable source of energy rich reserve fuel (1)

- (c) TWEE voedselsoorte, wat die **minste** geskik is vir die voorkoming van hardlywigheid (2)
- (d) TWEE voedselsoorte, wat heelwaarskynlik jig (ophoping van uriensuur in die gewrigte) in mense kan veroorsaak (2)

3.1.2 Verduidelik waarom boontjies 'n baie hoë koolhidraatinhoud het as dit met die ander voedselsoorte vergelyk word. (2)  
(9)

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



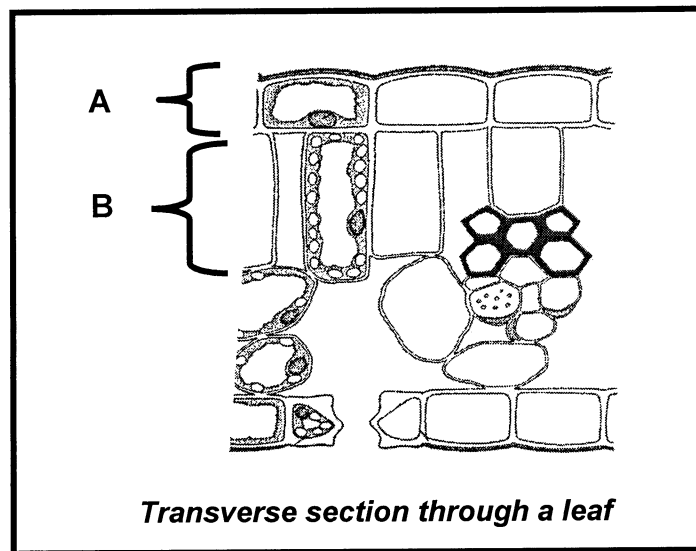
- 3.2.1 Noem TWEE anorganiese voedingstowwe wat plante vir die proses van fotosintese benodig. Dui ook langs elkeen aan waar elk van die voedingstowwe vandaan kom. (4)
- 3.2.2 Verduidelik EEN manier waarop elk van die volgende weefsels struktureel vir die proses van fotosintese geskik is: (2)
- (a) A (2)
- (b) B (2)
- 3.2.3 Verduidelik die rede vir elk van die volgende stappe tydens die prosedure om vir stysel in 'n blaar te toets: (2)
- (a) Kook die blaar in water (2)
- (b) Kook die blaar in alkohol of brandspiritus (2)

(c) TWO foods, which are **least** suitable for the prevention of constipation (2)

(d) TWO foods, which are most likely to cause gout (an accumulation of uric acid in the joints) in humans (2)

3.1.2 Explain why beans have a very high carbohydrate content when compared with the other foods. (2)  
(9)

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



3.2.1 Name TWO inorganic substances that plants require for the process of photosynthesis. Next to each, also indicate where each of the substances comes from. (4)

3.2.2 Explain ONE way in which each of the following tissues is structurally suited for the process of photosynthesis:

(a) A (2)

(b) B (2)

3.2.3 Explain the reason for each of the following steps in the procedure to test for starch in a leaf:

(a) Boiling the leaf in water (2)

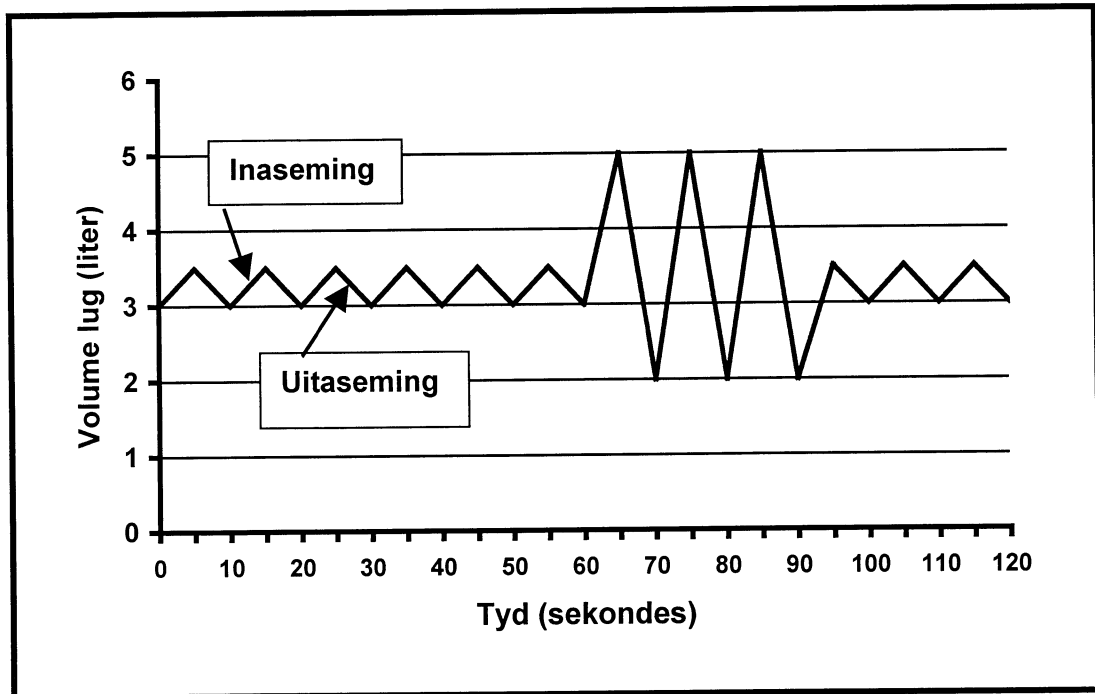
(b) Boiling the leaf in alcohol or methylated spirits (2)

- (c) Spoel die blaar in water af nadat dit in die alkohol of brandspiritus gekook is (2)
- (d) Verhit eerder die alkohol of brandspiritus in 'n houer wat in 'n waterbad geplaas is, as direk oor 'n oop vlam (2)
- (16)**

**Totaal Vraag 3: 25**

#### VRAAG 4

- 4.1 Die onderstaande grafiek verteenwoordig die resultate wat verkry is tydens 'n ondersoek waarin 'n spirometer gebruik is.  
'n Spirometer is 'n instrument wat gebruik word om die hoeveelheid lug wat die longe tydens asemhaling binnekom en verlaat, te meet.



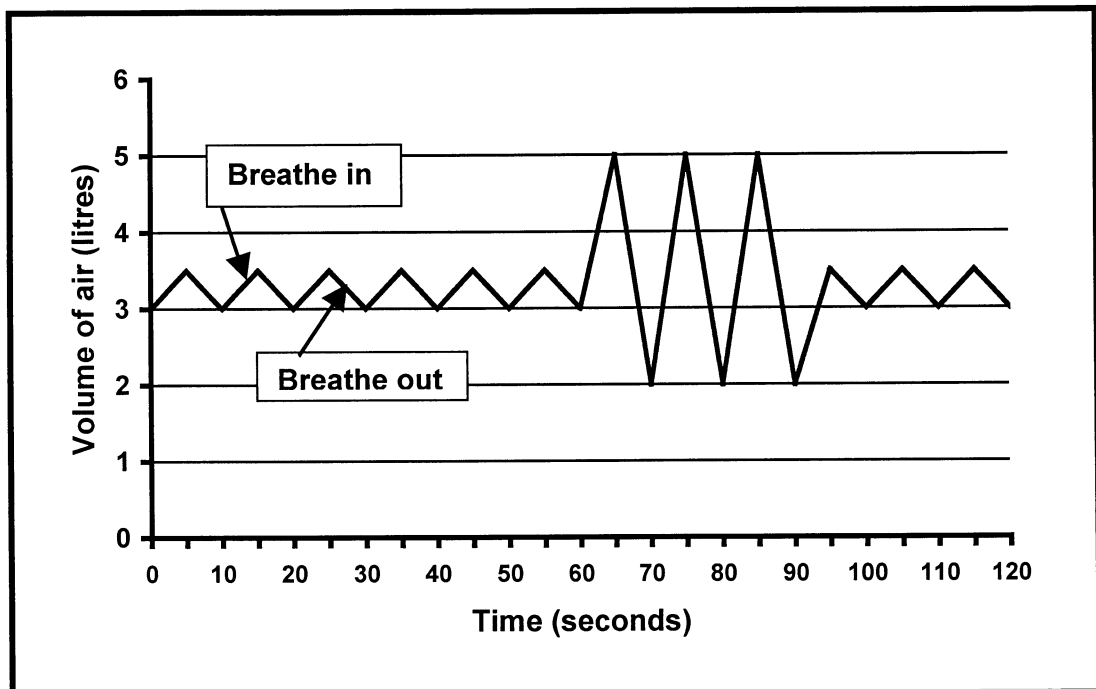
- 4.1.1 Hoeveel lug dring die longe in een asemhaling binne tydens diep asemhaling? (2)
- 4.1.2 Gee 'n verduideliking vir die verandering in die patroon van die grafiek tussen 65 sekondes en 95 sekondes. (3)
- 4.1.3 Hoeveel keer het die persoon in die eerste 60 sekondes asemgehaal? (1)
- (6)**

- (c) Rinsing the leaf in water after it has been boiled in alcohol or methylated spirits (2)
- (d) Heating the alcohol or methylated spirits in a container placed in a water bath rather than directly over the flame (2)
- (16)**

**Total Question 3: 25**

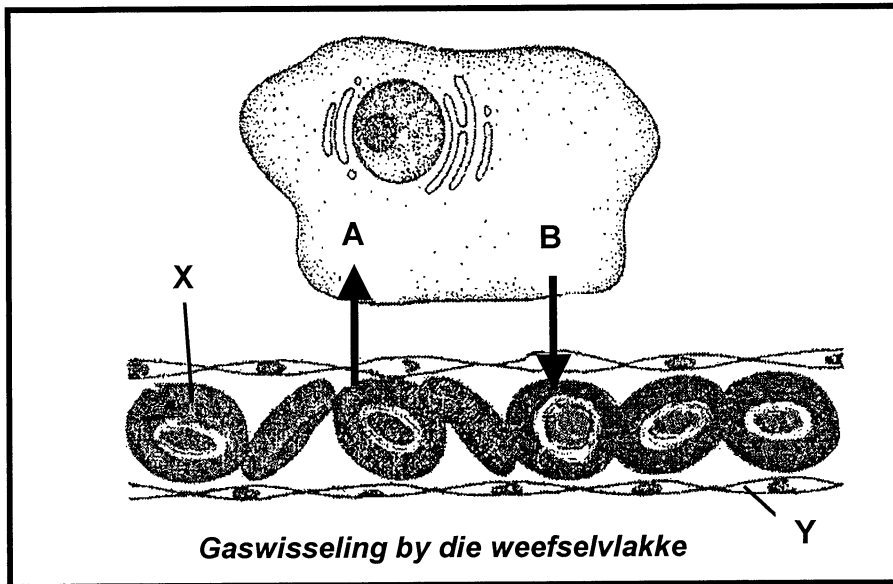
#### QUESTION 4

- 4.1 The graph below represents the results of an investigation using a spirometer. A spirometer is an instrument used to measure the amount of air that enters and leaves the lungs during breathing.



- 4.1.1 How much air is taken into the lungs in one breath during deep breathing? (2)
- 4.1.2 Provide an explanation for the change in the pattern of the graph between 65 seconds and 95 seconds. (3)
- 4.1.3 How many breaths did the person take in the first 60 seconds? (1)
- (6)**

4.2 Bestudeer onderstaande diagram en beantwoord die vrae wat daarop volg.



- 4.2.1 Maak 'n lys van TWEE maniere waarop gas B in die bloed vervoer word. (2)
  - 4.2.2 Benoem weefsel Y. (1)
  - 4.2.3 Verduidelik EEN manier waarop sel X struktureel aangepas is om sy funksie te verrig. (2)
- (5)**

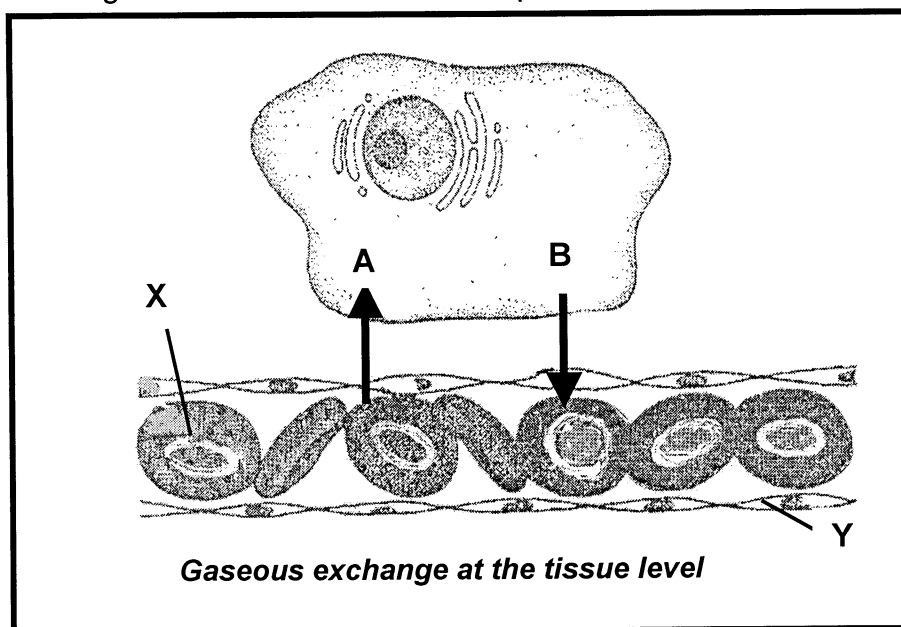
4.3 Beantwoord die vrae wat op die inligting in die onderstaande tabel gebaseer is.

**Samestelling van gasse in lug wat ingeasem en uitgeasem word**

Gasse	Ingeasemde lug	Uitgeasemde lug
Stikstof	79,00%	78,8%
Suurstof	20,87%	16,4%
Koolstofdiksied	0,03%	4,1%

- 4.3.1 Noem EEN ander gas wat nie in die tabel voorkom nie, maar wat ook ingeasem en uitgeasem word. (1)
  - 4.3.2 Bereken die persentasie stikstof wat in die longe tydens asemhaling vasgevang word. Toon ALLE berekenings. (2)
  - 4.3.3 Verduidelik waarom 0,03% koolstofdiksied ingeasem word terwyl 4,1% uitgeasem word. (2)
- (5)**

4.2 Study the diagram below and answer the questions that follow.



4.2.1 List TWO ways in which gas B is transported in the blood. (2)

4.2.2 Name tissue Y. (1)

4.2.3 Explain ONE way in which cell X is structurally suited for its function. (2)  
(5)

4.3 Answer the questions based on the information in the table below.

**Composition of gases in inhaled and exhaled air**

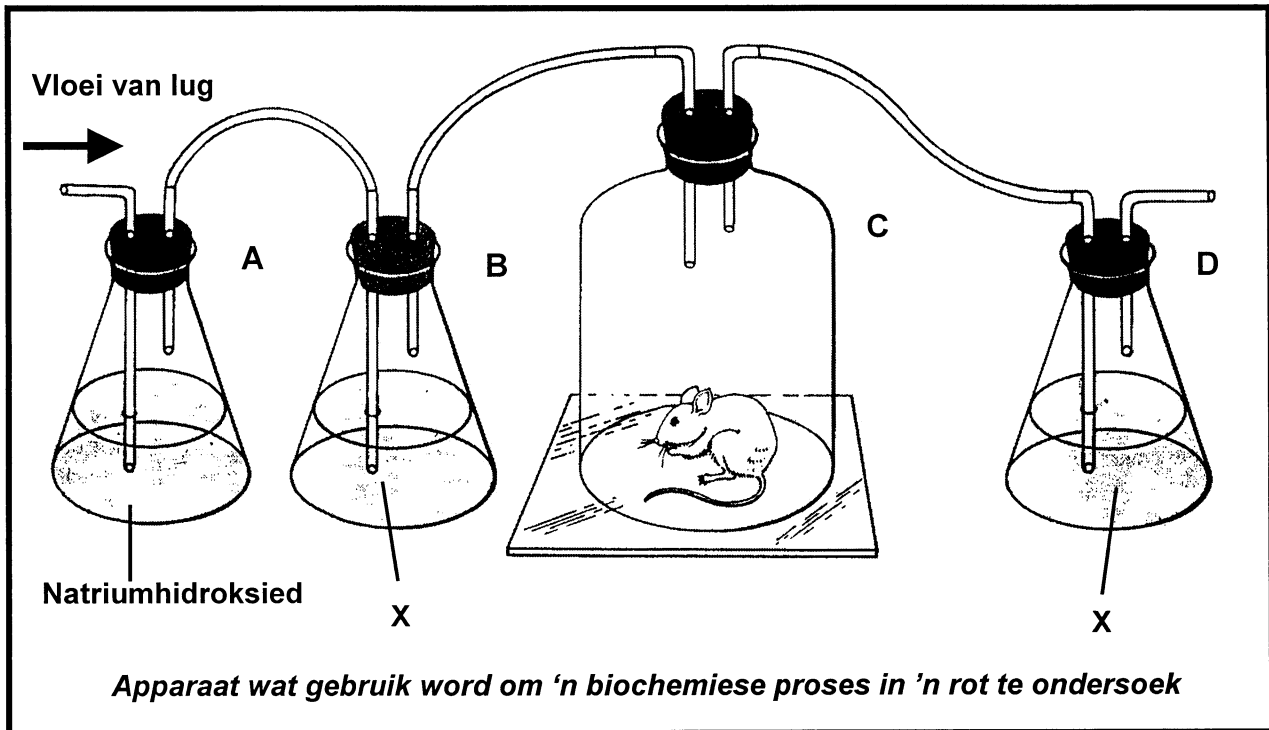
Gases	Inhaled air	Exhaled air
Nitrogen	79,00%	78,8%
Oxygen	20,87%	16,4%
Carbon dioxide	0,03%	4,1%

4.3.1 Name ONE other gas not listed in the table which is also inhaled and exhaled. (1)

4.3.2 Calculate the percentage of nitrogen trapped in the lungs during breathing. Show ALL calculations. (2)

4.3.3 Explain why 0,03% carbon dioxide was inhaled and yet 4,1% was exhaled. (2)  
(5)

4.4 Bestudeer die onderstaande diagram en beantwoord die vrae wat volg.

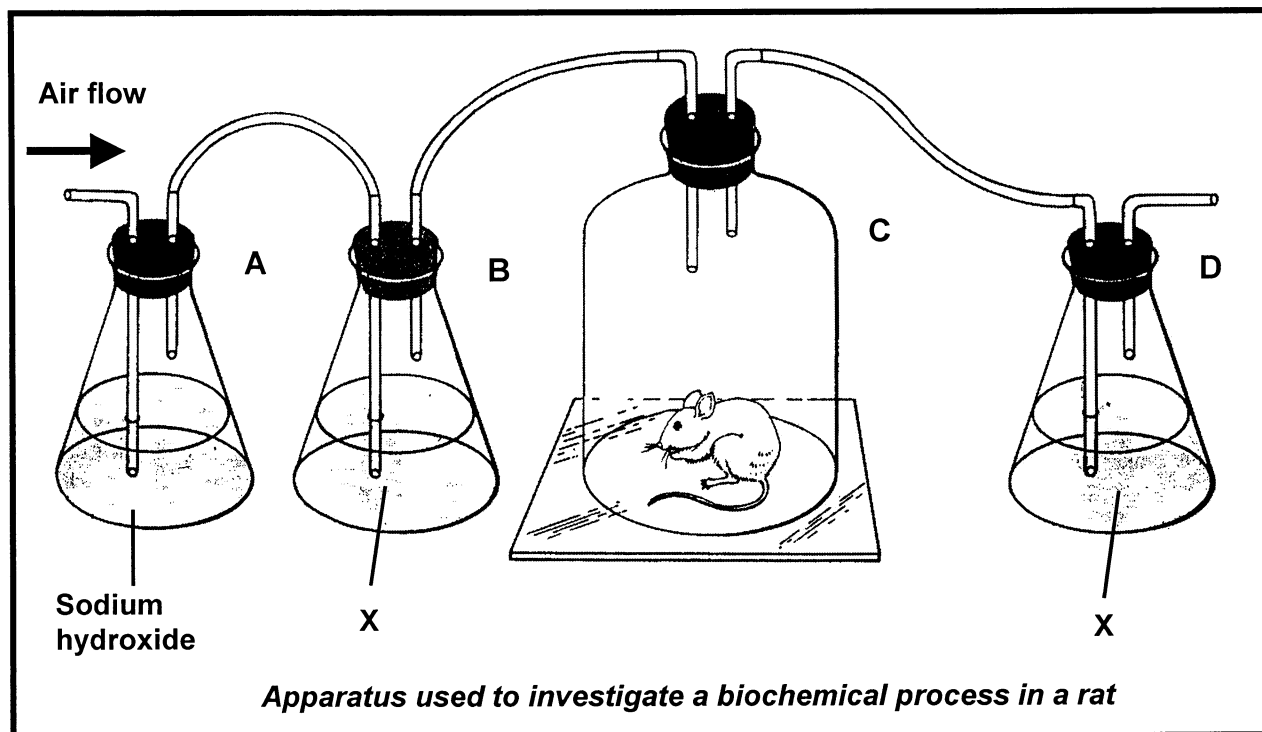


- 4.4.1 Watter biochemiese proses word tydens die eksperiment ondersoek? (1)
- 4.4.2 Noem die indikator wat deur X in fles B voorgestel word. (1)
- 4.4.3 Noem die doel van die:
- (a) Natriumhidroksied in fles A (2)
- (b) Indikator X in fles B (2)
- 4.4.4 Beskryf 'n kontrole vir hierdie ondersoek. (3)
- (9)**

**Totaal Vraag 4: 25**



4.4 Study the diagram below and answer the questions that follow.



- 4.4.1 Which biochemical process is being investigated in this experiment? (1)
- 4.4.2 Name the indicator that is represented by X in flask B. (1)
- 4.4.3 State the purpose of the:
- (a) Sodium hydroxide in flask A (2)
- (b) Indicator X in flask B (2)
- 4.4.4 Describe a control for this investigation. (3)
- (9)**

**Total Question 4: 25**

**VRAAG 5**

5.1 Lees die volgende gedeelte en beantwoord dan die vrae wat volg.

**Sellulêre Respirasie**

*Adenosientrifosfaat (ATP) is die onmiddellike bron van energie wat deur spiere gebruik word. Wanneer glukose tydens sellulêre respirasie afgebreek word om energie vry te stel, word die energie na die ATP-molekules oorgedra.*

*Die eerste stap tydens die afbreek van glukosemolekules vind in die afwesigheid van suurstof plaas. Dit staan bekend as die anaërobiese fase. Een van die stowwe wat hier geproduseer word, is melksuur wat in die spierselle ophoop.*

*As baie suurstof aanwesig is, vind aërobiese respirasie plaas. Dit het tot gevolg dat koolstofdiksied en water in plaas van melksuur gevorm word.*

5.1.1 Noem:

- (a) Die hoofbrandstofmolekuul vir sellulêre respirasie (1)
- (b) TWEE produkte van aërobiese respirasie (2)
- (c) EEN produk van anaërobiese respirasie in spiere (1)

5.1.2 Noem EEN verskil tussen anaërobiese respirasie in plantselle en in dierselle.

(2)  
(6)

**QUESTION 5**

5.1 Read the following passage and then answer the questions.

**Cellular Respiration**

*Adenosine triphosphate (ATP) is the immediate source of energy used by muscles. When glucose is broken down during cellular respiration to release energy, this energy is transferred to ATP molecules.*

*The first step in the breakdown of glucose molecules takes place in the absence of oxygen. This is known as the anaerobic phase. One of the substances produced here is lactic acid which accumulates in the muscle cells.*

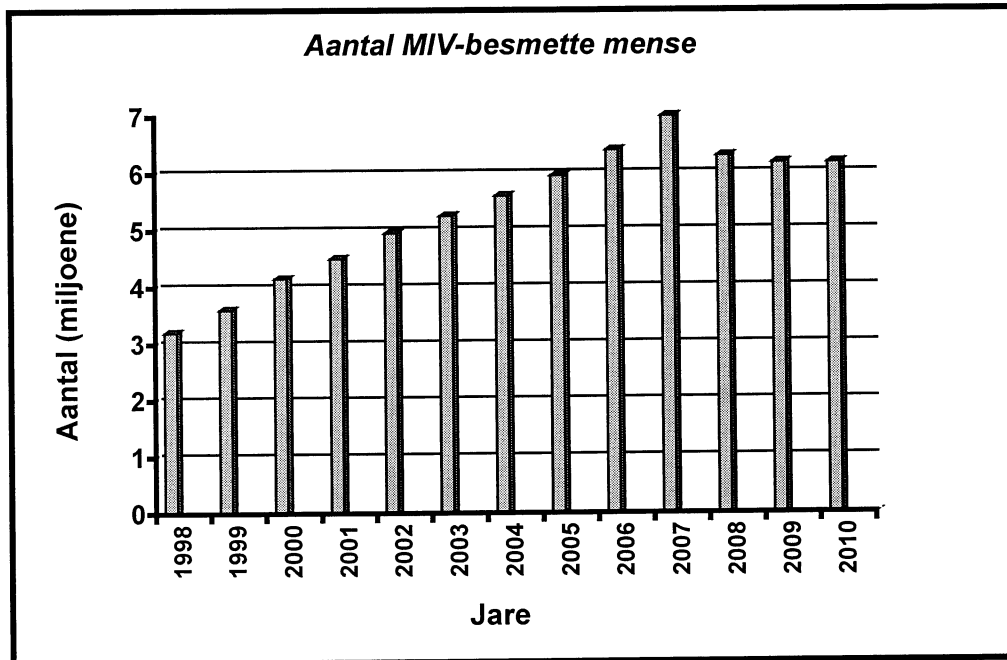
*If plenty of oxygen is available then aerobic respiration takes place. This results in the formation of carbon dioxide and water instead of lactic acid.*

5.1.1 Name:

- (a) The main fuel molecule for cellular respiration (1)
- (b) TWO products of aerobic respiration (2)
- (c) ONE product of anaerobic respiration in muscles (1)

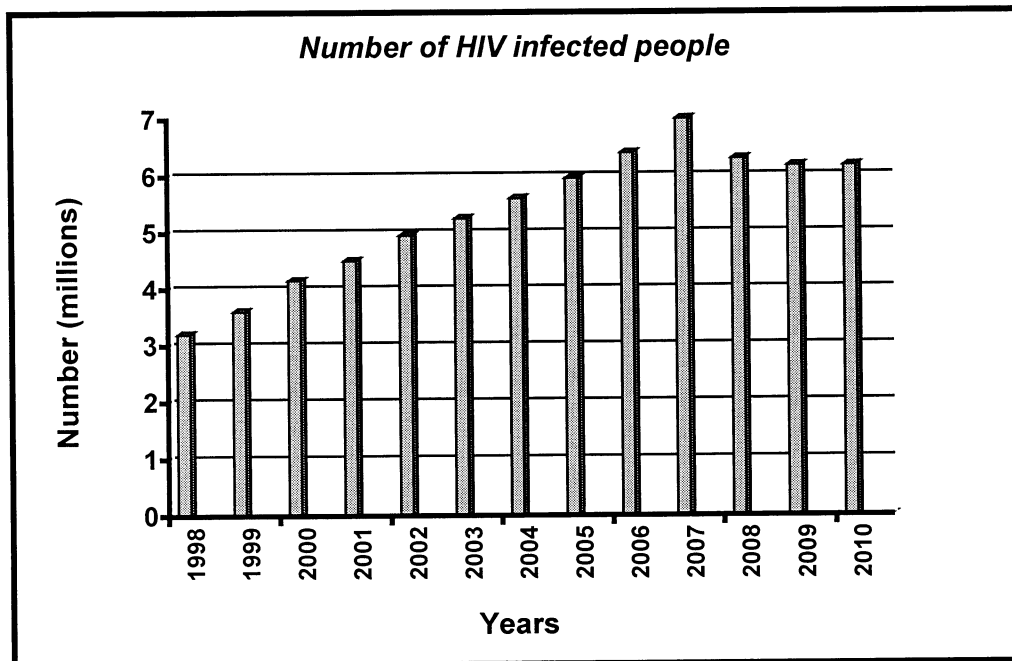
5.1.2 State ONE difference between anaerobic respiration in plant cells and in animal cells. (2)  
(6)

- 5.2 Die Suid Afrikaanse bevolking het een van die vinnigste groeitempo's van MIV/VIGS in die wêreld beleef. Die onderstaande grafiek illustreer die werklike getalle wat tot 2003 versamel is asook die vooruitskattings daarna. Die vinnige tempo waarteen MIV/VIGS in beide die stedelike en landelike gebiede versprei, is deels as gevolg van 'n goeie infrastruktuur vir vervoer en 'n bevolking wat baie rondbeweeg.



- 5.2.1 Definieer die term bevolking. (3)
- 5.2.2 In watter jaar is die geskatte aantal MIV-besmette Suid-Afrikaners die hoogste? (1)
- 5.2.3 In watter jaar, word daar geskat, sal daar vir die eerste keer 'n afname in die aantal mense wees wat met MIV besmet is? (1)
- 5.2.4 Noem EEN rede waarom daar moontlik 'n afname in die aantal mense kan wees wat MIV-besmet is. (2)
- 5.2.5 Watter jaar toon 'n totaal van ongeveer 4,5 miljoen MIV-besmettings? (1)
- 5.2.6 Watter direkte metode kan gebruik word om die grootte van die bevolking te bepaal? (1)
- 5.2.7 Verduidelik waarom dié siekte as 'n digtheidsafhanklike faktor geklassifiseer kan word. (3)
- 5.2.8 In baie lande in Afrika is die tempo van besmetting stadiger in die landelike gebiede as in die stedelike gebiede. Stel 'n rede voor waarom dit nie die geval in Suid-Afrika is nie. (2)
- (14)**

- 5.2 The South African population has experienced one of the fastest growth rates of HIV/AIDS in the world. The graph below shows actual measurements taken up to 2003 and projected thereafter. The rapid rate of spread of HIV/AIDS in both urban and rural areas is due partly to a good transport infrastructure and a mobile population.



- 5.2.1 Define the term population. (3)
- 5.2.2 In which year is it projected that the number of HIV infected South Africans would be the highest? (1)
- 5.2.3 In which year is it projected that there will be a drop in numbers, for the first time, of people being infected with HIV? (1)
- 5.2.4 State ONE reason why there might be a drop in numbers of those infected with HIV. (2)
- 5.2.5 Which year shows a total of approximately 4,5 million HIV infections? (1)
- 5.2.6 What direct technique can be used to determine the size of the population? (1)
- 5.2.7 Explain why this disease can be classified as a density-dependent factor. (3)
- 5.2.8 In many African countries, the rate of infection is slower in the rural areas than in the urban areas. Suggest why this is not the case in South Africa. (2)

**(14)**

5.3 Onderskei tussen die volgende terme:

- (a) Interspesifieke kompetisie en intraspesifieke kompetisie (3)
- (b) Predator en prooi (2)
- (5)

**Totaal Vraag 5: 25**  
**TOTAAL AFDELING B: 100**  
**GROOTTOTAAL: 150**

5.3 Differentiate between the following terms:

- (a) Interspecific competition and intraspecific competition (3)
- (b) Predator and prey (2)
- (5)

**Total Question 5: 25**  
**TOTAL SECTION B: 100**  
**GRAND TOTAL: 150**