## SECTION A

## QUESTION 1

1.1.1 A✓✓
1.1.2 C✓✓
1.1.3 B✓✓
1.1.4 D✓✓
1.1.5 B✓✓
1.1.6 B✓✓
1.1.7 C✓✓ 7 X 2 **(14)**

1.2.1 Epiglottis✓
1.2.2 Mitochondrion✓
1.2.3 Lag phase✓
1.2.4 Hydrolysis✓
1.2.5 pH scale✓
1.2.6 Environmental resistance✓ 6 X 1 **(6)**

1.3.1 A only✓✓
1.3.2 None✓✓
1.3.3 B only✓✓
1.3.4 B only✓✓
1.3.5 Both A and B✓✓
1.3.6 A only✓✓
1.3.7 Both A and B✓✓ 7 X 2 **(14)**

1.4.1 Energy✓ (1)
1.4.2 Fats✓Cholesterol✓Sodium✓
***Mark first TWO only*** (2)

1.4.3 (a) $\frac{1}{3}$ x 67✓
= 22,8✓g✓ (3)

(b) 67g = 30%✓
= $\frac{30}{100}$ x 8500✓
= 2550 ✓kJ (3)
**(9)**



1.5.1 5✓mg✓ (2)
1.5.2 Cooking✓ and storage✓ destroy vitamin C (2)
1.5.3 Through water loss by boiling✓ (1)
1.5.4 Boiling✓ (1)

1.5.5 - prevents scurvy✓
- assists in healing of wounds✓
- assists in the absorption of iron in the intestine✓
- builds/strengthens the immune system✓ Any 2 X 1 (1)

***Mark first TWO only*** **(8)**

1.6.1 Photosynthesis✓ (1)
1.6.2 Oxygen✓ (1)
1.6.3 - remove test tube✓
- cover the open end of the test tube with a finger to prevent the collected gas from escaping✓
- insert the glowing end of a wood splint into the test tube✓
- glowing splint bursts into flame✓ which indicates that oxygen is present Any 3 X 1 (3)

1.6.4 To increase the supply of carbon dioxide ✓needed for photosynthesis✓ (2)
1.6.5 - set up the apparatus as in the experiment✓
- but place it in the dark✓ (2)

**(9)**

**TOTAL QUESTION 1: 60**

## SECTION B

## QUESTION 2

2.1.1 - To investigate whether peas contain the enzyme/amylase✓
- which converts/ digest starch to maltose✓ (2)

2.1.2 The agar contained starch✓✓ (2)

2.1.3 The unboiled pea seeds produced an enzyme/amylase✓which broke down the starch✓ (2)

2.1.4 Maltose/glucose✓ (1)

2.1.5 Amylase✓ (1)

2.1.6 - For the seeds to absorb water✓which is a medium for chemical reactions✓/soften the skin
- To activate growth/germination✓
- Activate enzymes✓ Any 3 X 1 (3)

2.1.7 - enzymes are organic catalysts /they bring about chemical reactions ✓/the amylase in the peas acted as organic catalysts to breakdown starch✓
- enzymes are sensitive to temperature/ high temperatures✓ denatured the enzymes in the boiled pea seeds✓so starch was not broken down.

***Mark first TWO only*** (4)

**(15)**

2.2.1 (a) Palisade mesophyll ✓ (1)
(b) Vascular bundle✓ (1)

2.2.2 (a) Oxygen✓ (1)
(b) Carbon dioxide✓ (1)

2.2.3 (a) Allows light to pass through for photosynthesis✓

***Mark first ONE only*** (1)

(b) Allows movement of gases/carbon dioxide and oxygen✓

***Mark first ONE only*** (1)

2.2.4 Light phase✓ (1)

2.2.5 - structure III/chloroplast can move✓allowing them to arrange themselves into the best position for maximum absorption of light✓
- they contain the green pigment /chlorophyll✓which is important for absorption of light✓
- stroma contains ribosomes✓ which manufacture the enzymes✓ for photosynthesis
- stroma contains starch granules✓ for storage of product✓ of photosynthesis
- grana made of thin flat discs✓ which increase the surface area✓ for absorption of light
- the stroma contains many enzymes✓ which are necessary for photosynthesis✓

***Mark first TWO only*** Any 2 X 2 (4)
**(11)**

2.3.1 - as light intensity increases, the rate of photosynthesis also increases✓
- until optimum light intensity is reached✓
- at this point the rate of photosynthesis is at the maximum✓
- further increase in light intensity does not bring about any further increase in the rate of photosynthesis✓ Any 3 X 1 (3)

2.3.2 (a) the rate of photosynthesis is higher in graph X✓than Y✓ because of a higher/optimum temperature✓

**or**

at a lower temperature✓, at Y, the rate of photosynthesis is lower✓ than at X✓ although the carbon dioxide concentration and light intensity stays the same (3)

(b) at a higher carbon dioxide concentration✓ at X, the rate of photosynthesis is higher✓ than at Z✓ (3)
**(9)**

**Total Ouestion 2: (35)**

## QUESTION 3

3.1.1 15 - 17✓mg/cm$^3$✓ (2)

3.1.2 14 - 15✓ minutes✓ (2)

3.1.3 54- 56 minutes✓✓/4 minutes after X (2)

3.1.4 The oxygen supply to the cells is still inadequate/ less than the demand✓
anaerobic respiration is still taking place to supply the energy needs of the body✓
Any 2 X 1 (2)
**(8)**

3.2.1 (a) To investigate whether germinating seeds release heat ✓during respiration✓ (2)

(b) To indicate the effect of heat on air✓✓ (2)

3.2.2 B✓ (1)

3.2.3 The heat released from the seeds during germination✓
heats up the test tube causing the air molecules in the test tube to rise/ expand✓and exert pressure on the water✓ which then rises✓
Any 2 X 1 (2)

3.2.4 (a) It serves as an insulator /To retain heat✓ (1)

(b) It will remain constant/rise slowly/rise to a lower level✓
Heat released by the seeds will be lost ✓ (2)
**(10)**

3.3.1 (a) A – Bronchus/bronchiolus✓
B - Alveolus✓ (2)

(b) Gaseous exchange/diffusion✓ (1)

3.3.2 (a) Carbon dioxide✓
(b) Oxygen✓ (2)



3.3.3 - numerous alveoli / large surface area✓ for exchange of gases
- thin epithelium made of single layer of cells✓for rapid diffusion
- presence of blood capillaries✓ for transport of gases
***Mark first TWO only*** Any 2 X 1 (2)

3.3.4
- blood in the capillary has high concentration of oxygen and a low concentration carbon dioxide✓
- tissue fluid has a low concentration of oxygen and high concentration of carbon dioxide✓
- exchange of gases occur from areas of high concentration to low concentration/according to the concentration gradient✓
- blood gains carbon dioxide and loses oxygen✓
- tissue gains oxygen and loses carbon dioxide✓ Any 3x1 (3)

**(10)**

3.4.1
- During exercise there is an increased demand for energy✓
- leading to increased breakdown of glucose✓to release energy
- the by product of this process is carbon dioxide✓which is then exhaled.

Any 2 X 1 (2)

3.4.2 Water vapour✓

***Mark first ONE only*** (1)

3.4.3 17 - 12✓= 5✓% (2)

3.4.4 Nitrogen cannot be used in the body in gaseous state/animals get nitrogen from food✓✓

Any 1 X 2 (2)

**(7)**

**TOTAL QUESTION 3: 35**

## QUESTION 4

4.1.1 X = intercostal muscles✓ (1)
Y = ribs✓ (1)

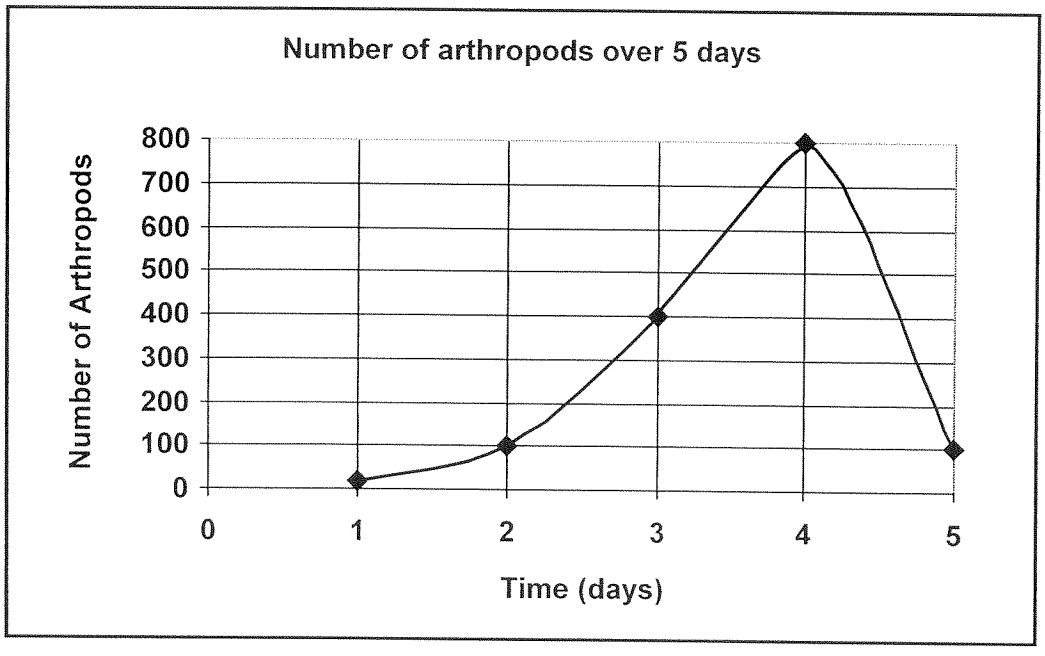
4.1.2 External intercostal muscles contract✓
Internal intercostal muscles relax✓
Causing the rib-cage to move upwards and forwards✓/increasing the volume of the thoracic cavity (3)

4.1.3
- high carbon dioxide concentration✓ in the blood
- stimulates the medulla✓/cardiovascular and respiratory centres the medulla
- to send impulses✓to the intercostals muscles (3)

**(8)**

4.2.1 A group of organisms of the same species✓ occupying a particular space✓at a particular time✓and with the potential to interbreed✓
Any 3 X 1 (3)

4.2.2




***Rubric for the mark allocation of the graph***

| | | | | |
|---|---|---|---|---|
| Correct type of graph | 1 | | | |
| Title of graph | 1 | | | |
| Correct label for X-axis including correct units | 1<br>1 | | | |
| Correct label for Y-axis | 1 | | | |
| Appropriate scale for X-axis | 1 | | | |
| Appropriate scale for Y-axis | 1 | | | |
| Plotting of points for graph | 3: plotted all 5 points correctly | 2 : plotted 3 or 4 correctly | 1: plotted two or less of the points correctly | 0: no points plotted |
| All plotted points joined | 1 | | | |

Wrong type of graph is drawn : marks will be lost for "correct type of graph" as well as for "plotting of points" (11)

4.2.3 Geometric✓ (1)

4.2.4 800/ just below 800✓✓ (2)

4.2.5 2 times✓ (1)

4.2.6 environmental resistance✓✓
limited food✓✓limited space✓✓
any density independent factor✓✓
***Mark first TWO only*** Any 2 X 2 (4)

4.2.7 Mark-recapture/Petersen method/simple sampling✓ (1)
**(23)**

4.3
- territoriality is found where some form of social organisation✓ is present
- each male marks✓ of his territory in which he keeps his harem of females
- he defends✓/ protects his marked territory and the resources it may contain such as food and shelter✓
- only he mates with the females and therefore the population increase is limited✓ because not all females are gravid at the same time
- the male only keeps a limited number of females at any given time✓
- population densities are limited by territorial rights✓

Any 4 X 1 (4)

**TOTAL QUESTION 4: (35)**

## SECTION C
## QUESTION 5

5.1.1 A - Oesophagus✓ (1)
D - Colon/large intestine✓ (1)

5.1.2 Liver✓ and Pancreas✓/gall bladder
***Mark first TWO only*** (2)

5.1.3 Fibre✓/roughage (1)
It is indigestible /passes through the alimentary canal without being digested✓ or absorbed✓ (2)

5.1.4
- absorbs water and makes content bulky✓
- promotes peristalsis in the colon✓
- prevents constipation✓
- prevents cancer of the colon✓

***Mark first TWO only*** Any 2 x 1 (2)

5.1.5 Water✓ (1)
It is absorbed in the stomach, small intestine and large intestine✓
And some of it is passed out in faeces✓ (2)

5.1.6
- acts as a transport medium and brings end products of digestion in close contact with the villi✓
- acts as a solvent for nutrients to be absorbed/ digested nutrients are absorbed in solution ✓
- transports absorbed nutrients from villi to the liver✓

***Mark first TWO only*** Any 2x1 (2)

5.1.7 Hepatic portal vein✓ (1)

5.1.8 Amino acids✓ and glucose/ any monosaccharide✓
***Mark first TWO only*** (2)
**(17)**

5.2

- fatty acid and glycerol/d✓is absorbed into the lacteal✓.
- glycerol is water soluble and is absorbed actively✓while
- fatty acids are insoluble so they combine with bile salts✓
- to form fatty acid- bile salt complex✓which are soluble.
- this enters through the columnar epithelial cells ✓of the villi by diffusion✓
- fatty acids separate from the bile salts again ✓
- and recombine with glycerol ✓to form small fat droplets/triglycerides. ✓
- which are absorbed into the lacteal.
- fat with lymph forms a milky substance called chyle✓
- a little of the fat enters the blood stream✓
- most of the fat enters the lymphatic system ✓which eventually empties into the thoracic duct✓and from there into the blood system.
- fat is then used as a reserve source of energy✓
- as structural components of cell membranes✓
- as well as for insulation✓.
- excess is converted by the liver✓into glycogen✓
- or stored under the skin /around organs as adipose tissue✓

**Factual Content**: Any 15 X 1 (15)

**Synthesis:**

| Marks | Descriptions |
|---|---|
| 3 | Well structured – demonstrates insight and understanding of question |
| 2 | Minor gaps in the logic and flow of the answer |
| 1 | Attempted but with significant gaps in the logic and flow of the answer |
| 0 | Not attempted/nothing written other than question number |

Synthesis: 03
**(18)**
**TOTAL QUESTION 5: 35**

## AFDELING A

## VRAAG 1

1.1.1 A✓✓
1.1.2 C✓✓
1.1.3 B✓✓
1.1.4 D✓✓
1.1.5 B✓✓
1.1.6 B✓✓
1.1.7 C✓✓ 7 X 2 **(14)**

1.2.1 Epiglottis✓
1.2.2 Mitochondriun✓
1.2.3 Sloerfase✓
1.2.4 Hidrolise✓
1.2.5 pH skaal✓
1.2.6 Omgewingsweerstand✓ 6 X 1 **(6)**

1.3.1 Slegs A✓✓
1.3.2 Geeneen✓✓
1.3.3 Slegs B✓✓
1.3.4 Slegs B✓✓
1.3.5 Beide A en B✓✓
1.3.6 Slegs A✓✓
1.3.7 Beide A en B✓✓ 7 X 2 **(14)**

1.4.1 Energie✓ (1)
1.4.2 Vette✓Cholesterol✓Natrium✓ (2)
***Merk slegs eerste TWEE***

1.4.3 (a) $\frac{1}{3}$ x 67✓
= 22,8✓g✓ (3)

(b) 67g = 30%✓
= $\frac{30}{100}$ x 8500✓
= 2550 ✓kJ (3)
**(9)**



1.5.1 5✓mg✓ (2)
1.5.2 Kokery✓ en berging✓ vernietig vitamien C (2)
1.5.3 Waterverlies tydens kokery✓ (1)
1.5.4 Kokery✓ (1)

1.5.5 - voorkom skeurbuik✓
- help met die herstel van wonde✓
- help met die absorpsie van yster in die dunderm✓
- opbou/versterk die immuunstelsel✓ Enige 2 X 1 (1)

***Merk slegs eerste TWEE*** **(8)**

1.6.1 Fotosintese✓ (1)

1.6.2 Suurstof✓ (1)

1.6.3 - verwyder die proefbuis✓
- bedek die opening van die proefbuis met jou vinger om te voorkom dat die gas wat versamel is, ontsnap✓
- druk die gloeiende punt van 'n houtsplinter in die proefbuis✓ gloeiende punt ontvlam✓ wat aandui dat suurstof aanwesig is Enige 3 X 1 (3)

1.6.4 Om die voorsiening van koolstofdioksied te verhoog✓ wat vir wat vir fotosintese benodig word✓ (2)

1.6.5 - stel die apparaat soos tydens die eksperiment op✓
- maar sit dit in die donker✓ (2)

**(9)**

**TOTAAL VRAAG 1: 60**

## AFDELING B

## VRAAG 2

2.1.1 - Om te ondersoek of ertjies die ensiem/amilase✓ bevat
- wat stysel na maltose omskakel/verteer✓ (2)

2.1.2 Die agar bevat stysel✓✓ (2)

2.1.3 Die ongekookte ertjiesade produseer 'n ensiem/amilase✓wat die stysel afbreek✓ (2)

2.1.4 Maltose/glukose✓ (1)

2.1.5 Amilase✓ (1)

2.1.6 - Vir die sade om water te absorbeer✓wat 'n medium is vir chemiese reaksies✓/maak dop sag
- Om groei te aktiveer/ontkieming✓
- Aktiveer ensieme✓ Enige 3 X 1 (3)

2.1.7 - ensieme is organiese katalisators /hulle sit chemiese reaksies aan die gang✓/die amilase in die ertjies het as organiese katalisators opgetree wat die stysel afgebreek het✓
- ensieme is gevoelig vir temperatuur/ hoë temperatuur✓ denatureer die ensieme van die gekookte ertjiesade✓gevolglik is die stysel nie afgebreek nie

***Merk slegs eerste TWEE*** (4)
**(15)**

2.2.1 (a) Palissade mesofil ✓ (1)
(b) Vaatbondel✓ (1)

2.2.2 (a) Suurstof✓ (1)
(b) Koolstofdioksied✓ (1)

2.2.3 (a) Laat lig toe om vir fotosintese deur te beweeg✓

***Merk slegs eerste EEN*** (1)

(b) Laat beweging van gasse/koolstofdioksied en suurstof toe✓

***Merk slegs eerste EEN*** (1)

2.2.4 Ligfase✓ (1)



2.2.5 - struktuur III/chloroplas kan beweeg✓wat hulle toelaat om te beweeg sodat hulle hulself posisioneer om maksimum sonlig te absorbeer✓
- hulle bevat 'n groen pigment /chlorofil✓wat vir die absorpsie van lig noodsaaklik is✓
- stroma bevat ribosome✓ wat ensieme vervaardig✓ vir fotosintese
- stroma bevat styselkorrels✓ wat die produk van fotosintese berg✓
- granums bestaan uit dun, plat skyfies✓ wat die oppervlakarea vir die absorpsie van lig vergroot✓
- die stroma bevat baie ensieme✓ wat vir fotosintese✓noodsaaklik is

***Merk slegs eerste TWEE*** Enige 2 X 2 (4)
**(11)**

2.3.1 - soos die ligintensiteit toeneem, sal die tempo van fotosintese ook toeneem✓
- totdat optimum ligintensiteit bereik word✓
- by hierdie punt is die tempo van fotosintese maksimaal✓
- 'n verder toename in ligintensiteit, veroorsaak nie 'n verdere toename in fotosintese nie✓ Enige 3 X 1 (3)

2.3.2 (a) die tempo van fotosintese is hoër in grafiek X✓as Y✓ a.g.v 'n hoër/optimum temperatuur✓

**of**

by 'n laer temperatuur✓, Y, is die tempo van fotosintese laer✓ as by X✓ alhoewel die koolstofdioksiedkonsentrasie en ligintensiteit dieselfde bly (3)

(b) by 'n hoër koolstofdioksiedkonsentrasie✓ by X, is die tempo van fotosintese hoër✓ as by Z✓ (3)
**(9)**

**Totaal Vraag 2: (35)**

## VRAAG 3

3.1.1 15 - 17✓mg/cm$^3$✓ (2)

3.1.2 14 - 15✓ minute✓ (2)

3.1.3 54- 56 minute✓✓/4 minute na X (2)

3.1.4 Die toevoer van suurstof na die selle is steeds onvoldoende/ minder as dit wat benodig word✓
anaërobiese respirasie vind steeds plaas om aan die energiebehoeftes van die liggaam te voldoen✓

Enige 2 X 1 (2)
**(8)**

3.2.1 (a) Om te ondersoek of ontkiemende sade hitte ✓tydens respirasie✓ vrystel (2)

(b) Om die invloed van hitte op lug aan te dui✓✓ (2)

3.2.2 B✓ (1)

3.2.3 Die hitte wat deur die sade tydens ontkieming vrygestel word✓
verwarm die proefbuis wat veroorsaak dat die lugmolekules in die proefbuis styg/ uitsit✓en druk op die water uitoefen✓ wat dan styg✓

Enige 2 X 1 (2)

3.2.4 (a) Dit dien as 'n isolator /Om hitte te behou✓ (1)

(b) Dit sal konstant bly/stadig styg/tot 'n laer vlak styg✓
Hitte wat deur die sade vrygestel is, sal verlore gaan✓ (2)
**(10)**

3.3.1 (a) A – Brongus/brongioles✓
B - Alveolus✓ (2)

(b) Gaswisselling/diffusie✓ (1)

3.3.2 (a) Koolstofdioksied✓
(b) Suurstof✓ (2)

3.3.3 - baie alveoli / groot oppervlak✓ vir gaswisselling
- dun epiteel bestaan uit 'n enkele laag selle✓vir vinnige diffusie
- teenwoordigheid van kapillêre bloedvate✓ vir vervoer van gasse

***Merk slegs eerste TWEE*** Enige 2 X 1 (2)

3.3.4
- bloed in die kapillêres het 'n hoë konsentrasie suurstof en 'n lae konsentrasie koolstofdioksied✓
- weefselvloeistof het 'n lae konsentrasie suurstof en 'n hpë konsentrasie koolstofdioksied✓
- gaswisselling vind plaas van 'n gebied met 'n hoë konsentrasie na 'n lae konsentrasie/saam met 'n konsentrasiegradiënt✓
- bloed neem koolstofdioksied op en verloor suurstof✓
- weefsels neem suurstof op en verloor koolstofdioksied✓

Enige 3 x 1 (3)
**(10)**

3.4.1
- Tydens oefening is daar 'n toename in die vraag vir energie✓
- wat lei tot 'n toename in die afbreek van glukose✓om energie vry te stel
die newe-produk van hierdie proses is koolstofdioksied✓wat dan uitgeasem word

Enige2 X 1 (2)

3.4.2 Waterdamp✓

***Merk slegs eerste EEN*** (1)

3.4.3 17 - 12✓= 5✓% (2)

3.4.4 Stikstof kan nie in die liggaam in die vorm van 'n gas gebruik word nie/ diere verkry stikstof uit voedsel✓✓ Enige1 X 2 (2)
**(7)**

**TOTAAL VRAAG 3: 35**

## VRAAG 4

4.1.1 X = tussenribspiere✓ (1)
Y = ribbe✓ (1)

4.1.2 Uitwendige tussenribspiere trek saam✓
Inwendige tussenribspiere verslap✓
Veroorsaak dat die borsholte opwaarts en vorentoe beweeg✓/vergroot die volume van die borsholte (3)

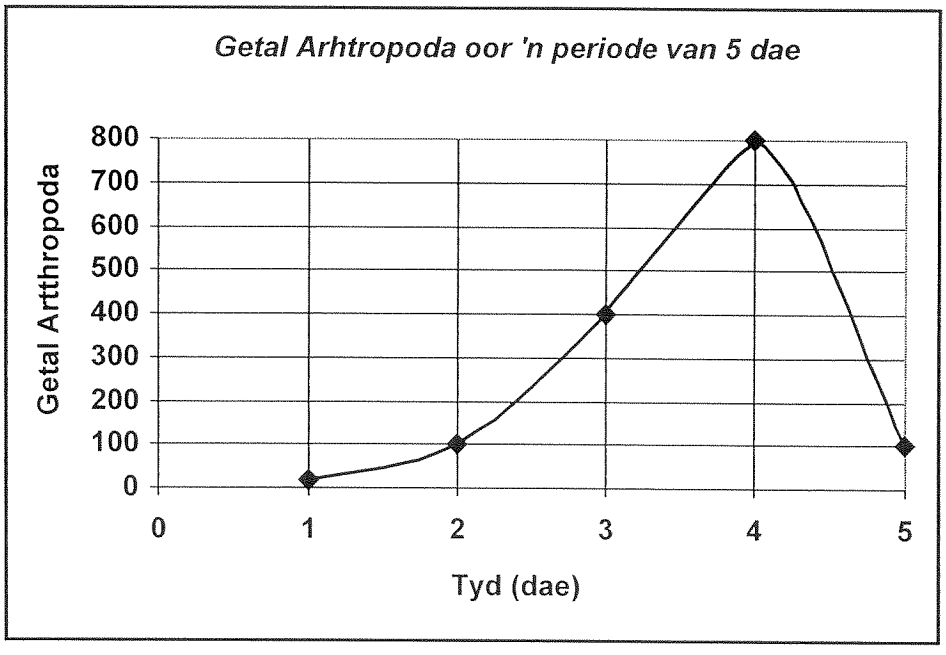
4.1.3
- Hoë konsentrasie koolstofdioksied✓ in die bloed
- stimuleer die medulla✓/kardiovakulêre- en respiratoriese sentrums in die medulla
- stuur impulse✓na die tussenribspiere (3)

**(8)**

4.2.1 'n Groep organismes van dieselfde spesie✓ wat in 'n spesifieke gebied voorkom✓op 'n spesifieke tyd✓en wat die vermoë besit om te kan kruisteel✓

enige 3 X 1 (3)

4.2.2




***Rubriek vir die toekenning van punte vir die grafiek***



| | | | | |
|---|---|---|---|---|
| Korrekte soort grafiek | 1 | | | |
| Opskrif van die grafiek | 1 | | | |
| Korrekte byskrif vir X-as insluitend die korrekte eenheid | 1<br>1 | | | |
| Korrekre byskrif vir Y-as | 1 | | | |
| Geskikte skaal vir X-as | 1 | | | |
| Geskikte skaal vir Y-as | 1 | | | |
| Plot van punte van grafiek | 3: al vyf punte korrek geplot | 2 : drie of vier punte korrek geplot | 1: twee of minder punte korrek geplot | 0: geen punte geplot |
| Al die geplotte punte verbind | 1 | | | |

Verkeerde soort grafiek is geteken : punte sal verloor word vir "korrekte soort grafiek" sowel as vir "plot van punte" (11)

4.2.3 Geometries✓ (1)

4.2.4 800/ net minder as 800✓ (2)

4.2.5 2 maal✓ (1)

4.2.6 omgewingsweerstand✓✓
voedsel beperk✓✓ruimte beperk✓✓
enige digtheisonafhanklike faktor✓✓
***Merk slegs eerste TWEE*** enige 2 X 2 (4)

4.2.7 Merk-hervang/Petersen metode/eenvoudge bemonstering✓ (1)
**(23)**

4.3
- territorialiteit is waar daar 'n mate van sosiale organisasie✓ teenwoordig is
- elke mannetjie merk✓ sy gebied waarin hy sy harem wyfies aanhou, af
- hy verdedig✓/ beskerm sy afgemerkte gebied asook die hulpbronne bv. voedsel en skuiling✓wat daarin mag voorkom
- slegs hy mag met die wyfies paar en daarom is bevolkingsgroei beperk✓ omdat nie al die wyfies dieselfde tyd dragtig is nie
- die mannetjie hou slegs 'n beperkte getal wyfies op 'n tyd aan✓
- bevolkingsdigthede word deur territoriale regte beperk✓

Enige 4 X 1 (4)

**TOTAAL VRAAG 4: (35)**

## AFDELING C

## VRAAG 5

5.1.1 A - Esofagus✓ (1)
D - Kolon/dikderm✓ (1)

5.1.2 Lewer✓en pankreas✓/galblaas
***Merk slegs eerste TWEE*** (2)

5.1.3 Vesel✓/ruvoedsel (1)
Dit is onverteerbaar /beweeg deur die spysverterinskanaal sonder dat dit verteer✓ of geabsorbeer✓word (2)

5.1.4
- absorbeer water en maak inhoud lywig✓
- bevorder peristalsiese bewegings in die kolon✓
- voorkom hardlywigheid✓
- voorkom kolonkanker✓

***Merk slegs eerste TWEE*** Enige 2 x 1 (2)

5.1.5 Water✓ (1)
Dit word in die maag, dunderm en dikderm geabsorbeer✓
en 'n deel word as fese uitgeskei✓ (2)

5.1.6
- dien as 'n vervoermedium en bring die eindprodukte van vertering in noue kontak met die villi✓
- tree as 'n oplosmiddel op vir voedingstowwe wat geabsorbeer moet word/ verteerde voedingstowwe word in oplossing geabsorbeer✓
- vervoer geabsorbeerde voedingstowwe vanaf die villi na die lewer✓

***Merk slegs eerste TWEE*** Enige 2 x 1 (2)

5.1.7 Lewerpoortaar✓ (1)

5.1.8 Aminosure✓ en glukose/ enige monosakkariede✓
***Merk slegs eerste TWEE*** (2)
**(17)**

5.2

- vetsure en gliserol✓word in die lakteaal geabsorbeer✓.
- gliserol is oplosbaar in water en word aktief geabsorbeer✓terwyl
- vetsure onoplosbaar is en met galsoute verbind✓
- om 'n vetsuurgalsoutverbinding te vorm✓wat oplosbaar is
- dit dring deur die kolomepiteelselle✓van die villi deur diffusie✓
- vetsure skei weer van die galsoute ✓
- en verbind weer met gliserol✓om klein vetdruppeltjies te vorm/trigliseriede ✓
- wat deur die lakteaal geabsorbeer word
- vette in limf vorm 'n melkerige oplossing wat chyl✓genoem word
- 'n bietjie van die vet dring die bloedstroom binne✓
- meeste van die vette dring die limfvatstelsel binne ✓wat uiteindelik in die borbuis✓ open en van daar in die bloedstelsel
- vette word dan as 'n reserwe-energiebron gebruik✓
- as strukturele komponente van selmembrane✓
- sowel as vir isolering✓
- oortollige vette word deur die lewer✓na glikogeen✓omgeskakel
- of onder die vel geberg /rondom organe as vetweefsel✓

**Feite inhoud**: Enige 15 X 1 (15)

**Sintese:**

| Punte | Beskrywings |
|---|---|
| 3 | Goed gestruktureerd – toon insig en begrip van die vraag |
| 2 | Klein leemtes in die logiese en vloei van die antwoord |
| 1 | Groot leemtes in die logiese en vloei van die antwoord |
| 0 | Geen poging/niks behalwe vraagnommer geskryf |

Sintese: 03

**(18)**

**TOTAAL VRAAG 5: 35**