

POSSIBLE ANSWERS
OCT / NOV 2006

Biology/SG/P2/Set A

2

Senior Certificate Examination 2006

1. **If more information than marks allocated is given**
Stop marking when maximum marks is reached and put a wavy line and 'max' in the right hand margin.
2. **If, for example, three reasons are required and five are given**
Mark the first three irrespective of whether all or some are correct/incorrect.
3. **If whole process is given when only part of it is required**
Read all and credit relevant part.
4. **If comparisons are asked for and descriptions are given**
Accept if differences / similarities are clear.
5. **If tabulation is required but paragraphs are given**
Candidates will lose marks for not tabulating.
6. **If diagrams are given with annotations when descriptions are required**
Candidates will lose marks.
7. **If flow charts are given instead of descriptions**
Candidates will lose marks.
8. **If sequence is muddled and links do not make sense**
Where sequence and links are correct, credit. Where sequence and links are incorrect, do not credit. If sequence and links becomes correct again, resume credit.
9. **Non-recognized abbreviations**
Accept if first defined in answer. If not defined, do not credit the unrecognised abbreviation but credit the rest of answer if correct.
10. **Wrong numbering**
If answer fits into the correct sequence of questions but the wrong number is given, it is acceptable.
11. **If language used changes the intended meaning**
Do not accept.
12. **Spelling errors**
If recognizable accept provided it does not mean something else in Biology or if it is out of context.

13. **If common names given in terminology**
Accept provided it is accepted at *this* memo discussion.
14. **If only letter is asked for and only name is given (and vice versa)**
No credit.
15. **If units are not given in measurements**
Candidates will lose marks. Memorandum will allocate marks for units separately.
16. Be sensitive to the **sense of an answer, which may be stated in a different way.**
17. **Caption**
All illustrations (diagrams, graphs, tables, etc.) must have a caption.
18. If you have doubts consult the other language memo, if still have doubts ask the Provincial Internal Moderator to contact the National Internal Moderator or the External Moderators.
19. **Code-switching of official languages (terms and concepts)**
A single word or two that appears in any official language other than the learners' assessment language used to the greatest extent in his/her answers should be credited, if it is correct. A marker that is proficient in the relevant official language should be consulted. This is applicable to all official languages.
20. No changes must be made to the marking memoranda without consulting the Provincial Internal Moderator who in turn will consult with the External Moderator/s.
21. Only memoranda bearing the signatures of the UMALUSI moderators and distributed by the National Department of Education via the Provinces must be used.

SECTION A

QUESTION 1

1.1

1.1.1 C ✓✓

1.1.2 B ✓✓

1.1.3 D ✓✓

1.1.4 A ✓✓

1.1.5 B ✓✓

1.1.6 A ✓✓

1.1.7 D ✓✓

(7 x 2) (14)

1.2

1.2.1 Hydathodes ✓

1.2.2 Geotropism(Gravitropism)✓

1.2.3 (Renal) capsule ✓

1.2.4 (Renal) calyx / pelvis ✓

1.2.5 Neuron ✓

1.2.6 Reflex action ✓

1.2.7 Hibernation ✓

1.2.8 Blood ✓

(8)

1.3

1.3.1 J ✓✓

1.3.2 I ✓✓

1.3.3 E ✓✓

1.3.4 B ✓✓

1.3.5 F ✓✓

1.3.6 D ✓✓

(6 x 2) (12)

1.4

- 1.4.1 (a) (To demonstrate) root pressure ✓ (1)
 (b) (To demonstrate) transpiration ✓ (1)
 (c) (To demonstrate) phototropism ✓ (1)
- 1.4.2 Expose plant to light from all sides / remove box / rotate plant / place plant in a box with no openings ✓✓ (2)
- 1.4.3 (a) Sap / oil/ water / rises ✓ in the capillary tube (1)
 (b) Water droplets / moisture ✓ forms against the inside wall of the bell jar (1)
OR
 Water level in beaker drops ✓ (1)
OR
 Blue cobalt chloride paper changes to pink ✓
 (c) Plant bends/grows towards the light ✓ (1)
- 1.4.4 - Even✓ distribution of auxins in stem in the control and uneven✓ distribution of auxins in stem in the experiment
OR
 - Even✓ lengthening of stem in the control and one side✓ lengthening more than the other in the experiment
OR
 - In the control, the plant received no light / uniform light from all sides✓ and in the experiment the plant received light from one side✓ only (2)
- 1.4.5 - Xylem✓ not damaged ✓
OR
 - so that sap / water ✓ can enter the glass tube / leave the stem ✓ (2)
- 1.4.6 - Cover water surface with water-impermeable substance / oil ✓
 - to prevent evaporation / to ensure water lost is from plant & not the beaker✓
OR
 - Seal bell jar with vaseline ✓
 - to make apparatus airtight / to prevent air entering or leaving bell jar ✓
OR
 - use indicator / cobalt chloride paper ✓
 - to verify that moisture is water ✓ (2)
- 1.4.7 **+2 to all candidates** (2)

(16)**TOTAL QUESTION 1: 50****TOTAL SECTION A: 50**

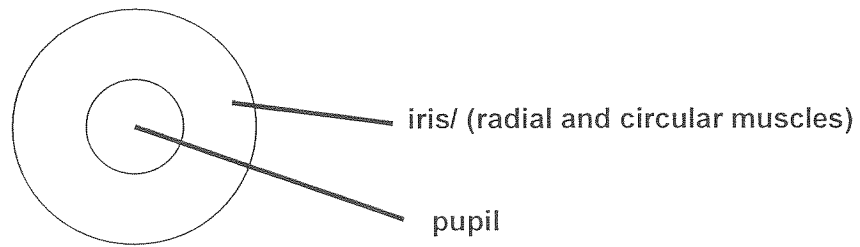
SECTION B**QUESTION 2****2.1**

- 2.1.1 (a) Sclera ✓ (1)
- (b) Choroid ✓ (1)
- (c) Conjunctiva ✓ (1)
- 2.1.2 (a) C ✓
D ✓
(Mark first 2 answers only) (2)
- (b) A ✓
B ✓
H ✓
(Mark first 3 answers only) (3)
- (c) G / H ✓
(Mark first answer only) (1)
- 2.1.3 - Contains receptors / rods and cones ✓
- for light ✓ stimuli
- to be converted to nerve impulses ✓
- that can be conducted ✓ (any 3) (3)

OR

- the lens is not transparent ✓
- because of cataracts / accumulation of proteins ✓
- and hence light cannot reach the retina ✓
- 2.1.4 - Contains blood vessels ✓
to transport food and oxygen / remove wastes ✓
- Contains pigments / is dark / brown ✓
- to prevent internal reflection of light ✓ (Mark first 2 answers only)
(2 x 2) (4)

2.1.5



Front view of parts C & D / Iris & pupil

Correct drawing	✓	
Clarity of lines	✓	
Shape	✓	
Two correct labels	✓ ✓	
Caption	✓	(6)
		(22)

2.2

2.2.1 Bitter ✓ (1)

2.2.2 - To remove any substance in the mouth ✓ (2)
- that can influence the taste of the substance being tasted ✓ (3)

TOTAL QUESTION 2: 25

QUESTION 3**3.1**

3.1.1 (a) Cerebrum ✓ (1)

(b) Cerebellum ✓ (1)

(c) Medulla oblongata ✓ (1)

3.1.2 - Makes reflex actions ✓ possible
 - Serves as pathway / ✓ for impulses to and from the brain
(Mark first 2 answers only) (2)
(5)

3.2

3.2.1 Pinna ✓ (1)

3.2.2 (a) B / C ✓ (1)

(b) D ✓ (1)

3.2.3

(a) Worsened ✓	OR	Improved ✓
(b) - Water enters auditory canal ✓ - while middle ear is filled with air ✓ - Unequal pressure on two sides of tympanum ✓ - which will not vibrate properly ✓ - If source of sound is from outside the water ✓ (Any 2)		If source of sound is from inside the water ✓ because sound travels better through water ✓

(2)

3.2.4 - Has ossicles (hammer, anvil and stirrup) ✓
 to intensify / transmit ✓ the sound vibrations
 - Ligaments ✓ of the ossicles
 help to reduce ✓ the intensity of loud sounds
 - The Eustachian tube ✓
 allows air to enter / leave the cavity/equalises pressure on either side of the tympanic membrane ✓
 - Openings are spanned by membranes (examples) ✓
 that can vibrate ✓ to pass the sound waves on
 - Difference in size between tympanum and oval window ✓
 intensifies the vibrations ✓

(Mark first 2 answers only) (4)**(10)**

3.3

3.3.1 B ✓ (1)

3.3.2 - Smaller ears ✓
 - has smaller surface area ✓ exposed to cold environment
 - leading to less heat lost/radiation to ✓ to cold environment (3)
 (4)

3.4

3.4.1 - Less heat absorbed / more heat reflected ✓
 - to prevent over-heating ✓ of body
 - that is detrimental to cell activity ✓ (any 2) (2)

3.4.2 - Body heat is used /lost from the mouth cavity / tongue ✓
 - to bring about evaporation ✓ of liquid from mouth cavity / tongue
 - thus bringing down ✓ body temperature (any 2)

OR

-Do not have sweat glands on most parts of the body / sweat glands only on paws and nose ✓
 -therefore the only way they can get rid of excess heat is by panting ✓ (2)

3.4.3 - Less heat transported to skin ✓ by reduced blood flow ✓
 - so that less heat is lost ✓ to the cold environment
 - to maintain constant body temperature ✓ (any 2) (2)
 (6)

TOTAL QUESTION 3: 25

QUESTION 4**4.1**

4.1.1 (a) Kidney ✓ (1)

(b) Sphincter / valve / muscle ✓ (1)

(c) Urethra ✓ (1)

4.1.2 (a) Stores urine ✓ (1)

(b) Controls passage of urine from bladder to urethra ✓ (1)

4.1.3

A	B
Contains more nitrogenous wastes ✓	Contains less nitrogenous wastes ✓
Contains more food substances ✓	Contains less food substances ✓
Contains more oxygen ✓	Contains less oxygen ✓
Contains less carbon dioxide ✓	Contains more carbon dioxide ✓

(Mark first 3 differences only) (any 3 x 2)
(Plus 1 for table)(7)

- 4.1.4 - Person will not be able to pass urine ✓
 - Metabolic wastes will not be removed ✓ from the body
 - and become poisonous ✓ for the cell
 - Excess water will accumulate ✓ in the body
 - causing the body to swell / leads to oedema ✓
 - pH will not be regulated ✓
 - causing malfunctioning of enzymes ✓
 - Total kidney failure ✓ will result
 - that can lead to malfunction of other organs / death ✓
 - Greater chance for formation of kidney stones ✓
 - which can cause infections ✓
 - leading to pain ✓
 - Urine will accumulate/build up pressure ✓ in kidney
 - that can cause internal bleeding ✓

(any 5) (5)
(17)

4.2

4.2.1 (a) Renal secretion/excretion ✓ (1)

(b) Re-absorption / (Absorption) ✓ (1)

4.2.2 (a) - C ✓✓
- because of complete✓ re-absorption (3)

(b) - B ✓✓
- some is excreted in urine/because of partial ✓ reabsorption (3)
(8)

TOTAL QUESTION 4: 25

QUESTION 5**5.1**

- 5.1 - Temperature ✓
- Wind ✓
- Light ✓
- Humidity ✓
- (Soil) water ✓

(Mark first 3 answers only) (3)**5.2**

5.2.1 Sub-stomatal opening / air space / air chamber ✓ (1)

5.2.2 Xerophytic / dry / arid / semi-arid / desert / semi-desert ✓ (1)

- 5.2.3 - Stomata on the ventral side ✓ of the leaf
and is not exposed to direct sunlight / to minimize water loss ✓
- Stomata are sunken ✓
creating a chamber that can be filled with vapour / to reduce vapour gradient ✓
 - The cuticle is thick ✓
to limit water loss ✓ through the stomatal openings
 - Presence of hairs / trichomes ✓
that can trap water vapour ✓
 - Thick epidermis ✓
limits water loss ✓

(Mark first 4 answers only) (4 x 2) (8)
(10)**5.3**

5.3.1 - To demonstrate the suction force ✓ of transpiration ✓ / transpiration ✓ pull ✓ (2)

5.3.2 - The rate of the rising of the mercury into the tube / (transpiration) will be slower ✓

OR

- The level of the mercury will be lower ✓ (1)

- 5.3.3(a) - Mercury is heavy / very dense ✓
being drawn up shows how strong transpiration pull is ✓
- It has a distinctive colour ✓
that allows greater visibility when water is being absorbed by
the leafy shoot ✓
 - Will not mix with water ✓
therefore can see how far it has moved ✓ (any 1 x 2) (2)

- (b) – To prevent air from entering the xylem ✓
- that can block the entry of water ✓ into the xylem (2)
- (7)**

5.4

5.4.1 (15 g – 4 g) ✓ = 11 ✓g ✓ (3)

5.4.2 - Was immersed in solution with the highest water potential / hypotonic solution/
(weakest solution) ✓

- therefore excessive endosmosis took place ✓

- leading to the highest gain ✓ in mass (any 2) (2)
(5)

TOTAL QUESTION 5: 25

TOTAL SECTION B: 100

GRAND TOTAL: 150

1. **Indien meer inligting as die punttoekenning gegee word**
Hou op merk nadat die maksimum punte verkry is en trek 'n kronkellyn en dui 'maks' punte in die regterkantse kantlyn aan.
2. **Indien, by voorbeeld drie redes vereis en vyf word gegee.**
Merk net die eerste drie ongeag daarvan of almal of sommige korrek / nie korrek is nie.
3. **Indien die hele proses beskryf word terwyl slegs 'n deel vereis word**
Lees alles en krediteer die relevante dele.
4. **Indien vergelykings vereis, maar beskrywings word gegee**
Aanvaar indien die verskille/ooreenkomste duidelik is.
5. **Indien tabulering vereis word en paragrawe word gegee**
Kandidate sal punte verbeur indien nie getabuleer nie.
6. **As geannoteerde diagramme aangebied in plaas van beskrywings wat vereis word**
Kandidate sal punte verbeur.
7. **Indien vloedigramme i.p.v beskrywings aangebied word**
Kandidate sal punte verbeur.
8. **Indien die volgorde vaag en skakelings nie sin maak nie**
Krediteer waar volgorde en skakelings korrek is. Waar volgorde en skakelings nie korrek is nie, moenie krediteer nie. As die volgorde weer korrek is, gaan voort om te krediteer.
9. **Onherkenbare afkortings**
Aanvaar indien dit aan begin van antwoord omskryf is. Indien dit nie omskryf is nie, moenie die onherkenbare afkorting krediteer nie, maar krediteer die res van die antwoord indien dit korrek is.
10. **Verkeerd genommer**
Indien die antwoorde die regte volgorde van die vrae pas, is dit aanvaarbaar.
11. **Indien die taal wat gebruik word die bedoelde betekenis verander**
Moenie aanvaar nie.
12. **Spelfoute**
Aanvaar as dit herkenbaar is, met die voorbehoud dat dit nie iets anders in Biologie beteken nie of as dit buite konteks is.

13. **Indien gewone name gegee word in terminologie**
Aanvaar, indien dit by die memobespreking aanvaar is.
14. **Indien slegs letter vereis word en slegs die naam word gegee (en andersom)**
Geen krediet
15. As eenhede van mate nie aangedui word
Kandidate sal punte verbeur. Memorandum sal afsonderlike punte vir eenhede aandui.
16. Wees sensitief vir die **betekenis van die antwoord, wat soms op verskillende maniere aangebied kan word**
17. **Opskrif.** Alle illustrasies (soos diagramme, tekeninge, grafieke, tabelle, ens.) moet van 'n opskrif voorsien word
18. As u twyfel, raadpleeg die memo in die ander taal, as u steeds twyfel vra die Provinsiale Interne Moderator om kontak met die Nasionale Interne of Eksterne Moderatore te maak.
19. **Vermenging van amptelike tale (terme/konsepte)**

Slegs 'n enkele woord of twee wat in enige ander amptelike taal anders as die leerder se assesseringstaal waarin die meeste van sy/haar antwoorde aangebied word, moet gekrediteer word, indien dit korrek is. 'n Nasionale wat in die relevante amptelike taal vaardig is, behoort geraadpleeg te word. Dit geld vir alle amptelike tale.
20. Geen veranderinge mag aan die goedgekeurde memorandum aangebring word sonder dat daar met die Provinsiale Interne Moderator, wat op sy/haar beurt met die Eksterne Moderator(e), sal beraadslaag, nie.
21. Slegs memorandums wat die handtekening van die UMALUSI moderatore bevat en deur die Nasionale Departement van Onderwys versprei word, mag gebruik word.

AFDELING A**VRAAG 1**

1.1	1.1.1	C ✓✓		
	1.1.2	B ✓✓		
	1.1.3	D ✓✓		
	1.1.4	A ✓✓		
	1.1.5	B ✓✓		
	1.1.6	A ✓✓		
	1.1.7	D ✓✓	(7 x 2)	(14)
1.2	1.2.1	Hidatodes ✓		
	1.2.2	Geotropisme (Gravitropisme) ✓		
	1.2.3	(Nier-)kapsel ✓		
	1.2.4	(Nier-)kelk ./ pelvis ✓		
	1.2.5	Neuron ✓		
	1.2.6	Refleksaksie / -beweging ✓		
	1.2.7	Hibernering ✓		
	1.2.8	Bloed ✓		(8)
1.3	1.3.1	J ✓✓		
	1.3.2	I ✓✓		
	1.3.3	E ✓✓		
	1.3.4	B ✓✓		
	1.3.5	F ✓✓		
	1.3.6	D ✓✓	(6 x 2)	(12)

- 1.4 1.4.1 (a) Om ... worteldruk ✓ (te demonstreer) (1)
- (b) transpirasie ✓ (te demonstreer) (1)
- (c) fototropisme ✓ (te demonstreer) (1)
- 1.4.2 Plant wat van alle kante aan lig blootgestel word / Verwyder die boks / Plant moet roteer / Plaas die p0lant in 'n donker plek / boks sonder openinge ✓✓ (2)
- 1.4.3 (a) Die sap / olielaag / water styg ✓ in die kapillêre buis (1)
- (b) Waterdruppels / vog ✓ vorm teen die binnewand van die klokfles
OF
Watervlak in beker daal ✓
OF
Blou koperchloriedpapier verkleur pink ✓ (1)
- (c) Stingel buig ✓ na die lig toe (1)
- 1.4.4 Eweredige ✓ verspreiding van ouksiene in die stingel in die kontrole en oneweredige ✓ verspreiding van ouksiene in stingel in die eksperiment
OF
Eweredige verlenging verlenging ✓ van stingel in die kontrole en die die eenkant verleng meer ✓ as die ander kant in die eksperiment
OF
Die plant kry nie lig / uniforme lig ✓ van alle kante nie en in die eksperiment kry die plant slegs lig aan die een kant ✓ (2)
- 1.4.5 - Xileem ✓ nie beskadig word nie ✓
OF
- sodat die sap / water ✓ die glasbuis kan binnegaan/die stingel verlaat ✓ (2)
- 1.4.6 - Bedek die wateroppervlak met waterondeurlaatbare stof / olie ✓
- om verdamping te voorkom / om te verseker dat die water van die plant en nie uit die beker kom nie ✓
OF
- Verseël die klokglas met Vaseline ✓
- om apparaat lugdig te maak / om te verhoed dat lug klokglas binnegaan / verlaat ✓
OF
- Gebruik 'n indikator / kobaltchloriedpapier ✓
- te verifieer of die vloeistof water is ✓ (2)
- 1.4.7 **+2 vir alle kandidate** (2)
(16)

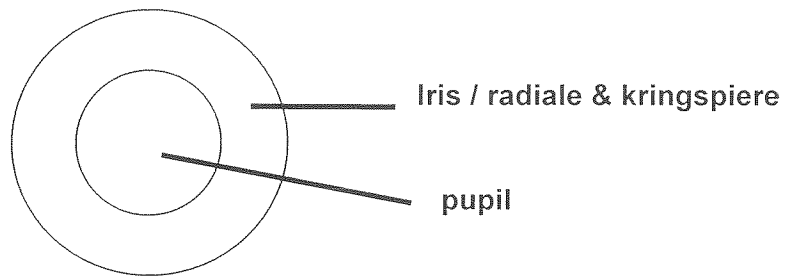
TOTAAL VRAAG 1: 50
TOTAAL AFDELING A: 50

AFDELING B

VRAAG 2

- 2.1 2.1.1 (a) Sklera ✓ (1)
- (b) Choroïed ✓ (1)
- (c) Konjunktiva ✓ (1)
- 2.1.2 (a) - C ✓
- D ✓ (merk slegs eerste twee antwoorde) (2)
- (b) - A ✓
- B ✓
- H ✓ (merk slegs eerste drie antwoorde) (3)
- (c) G / H ✓ (erk slegs eerste antwoord) (1)
- 2.1.3 - Bevat reseptore / stafies en keëltjies ✓
- vir ligstimuli ✓
- om na senuwee-impulse omgeskakel te word ✓
- wat gelei kan word ✓
- OF**
- Die lens is ondeursigtig vir lig ✓
- a.g.v. proteïene/katarakke wat in die lens versamel ✓
- en die lig kan nie die retina bereik ✓ (Enige 3) (3)
- 2.1.4 - Bevat bloedvaatjies ✓
om kos en suurstof te vervoer / afvalstowwe te verwyder ✓
- Bevat pigmente / is donker / bruin ✓
- om interne weerkaatsing van lig te voorkom ✓
(Sien slegs die eerste 2 antwoorde na)
(2 x 2) (4)

2.1.5



Vooraansig van dele C en D / iris en pupil

- Korrekte tekening/vorm ✓
- Duidelikheid van lyne ✓
- Vorm ✓
- Twee korrekte byskrifte ✓ ✓

Opskrif

(6)
(22)

2.2	2.2.1	Bitter	(1)
	2.2.2	- Om enige stof in die mond te verwyder ✓ - wat die smaak van die stof wat jy proe kan beïnvloed ✓	(2) (3)

TOTAAL VRAAG 2: 25

VRAAG 3

- 3.1 3.1.1 (a) Serebrum ✓ (1)
 (b) Serebellum ✓ (1)
 (c) Medulla oblongata ✓ (1)

- 3.1.2 - Maak refleksaksies moontlik ✓
 - Dien as geleidingsbaan ✓ vir impulse na en van die brein
(Sien slegs die eerste 2 antwoorde na) (2)
(5)

- 3.2 3.2.1 Pinna / oorskulp ✓ (1)

- 3.2.2 (a) B / C ✓ (1)
 (b) D ✓ (1)

- 3.2.3 (a) Versleg ✓ (1)

(b)

Versleg ✓	OR	Verbeter ✓
- As die klankbron buite die water is ✓ - water gaan die gehoorkanaal binne ✓ - terwyl die middeloor met lug gevul is ✓ - ongelyke druk aan weerskante van tympanum ✓ - maak dat dit nie reg vibreer nie ✓ (Enige 2)	OR	- As die klankbron in die water is ✓ - word klankgolwe beter voortgeplant ✓

(2)

- 3.2.4 - Het beentjies / hamer, aambeeld en stiebeuel) / ✓
 om die klankvibrasies te versterk / oor te dra ✓
 - Ligamente ✓ van die gehoorbeentjies help om die intensiteit van die klankgolwe te verminder ✓
 - Die buis van Eustachius ✓ laat toe dat die lug die holte binnegaan / verlaat / balanseer die druk aan beide kante van die timpaniese membraan ✓
 - Openinge word deur membrane omspan ✓ wat kan vibreer ✓ om die klankgolwe te gelei
 - Verskil in grootte tussen tympanum en ovale venster ✓ versterk die vibrasies ✓ (4)
(Sien slegs die eerste 2 antwoorde na) (2 x 2) (10)

3.3	3.3.1	B ✓		(1)
	3.3.2	- Kleiner ore ✓ - 'n kleiner oppervlak-area ✓ word aan die koue omgewing blootgestel ✓ - wat tot minder hitteverlies / uitstraling ✓ aan / na die koue omgewing lei	(Enige 3)	(3) (4)
3.4	3.4.1	- Minder hitte word geabsorbeer / Meer lig word weerkaats ✓ - om oorverhitting van die liggaam te voorkom ✓ - wat nadelig is vir selaktiwiteit ✓	(Enige 2)	(2)
	3.4.2	- Liggaamshitte word gebruik / deur die mondholte / tong verloor ✓ - om verdaming van vloeistof vanaf mondholte teweeg te bring ✓ - aldus bring dit die liggaamstemperatuur af ✓	(Enige 2)	
		OF		
		- Die grootste deel van die liggaam het nie sweetkliere nie ✓ - daarom is die enigste manier wat hulle van oormatige hitte kan ontslae raak, deur te hyg ✓		(2)
	3.4.3	- Minder hitte word na die vel vervoer ✓ - deur verminderde bloedvloei ✓ - sodat minder hitte aan die koue omgewing afgestaan word ✓ - om konstante liggaamstemperatuur te handhaaf ✓	(Enige 2)	(2) (6)
			TOTAAL VRAAG 3:	25

VRAAG 4

- 4.1 4.1.1 (a) Nier ✓ (1)
(b) Sfinkterspier / kringspier / spier / klep ✓ (1)
(c) Uretra ✓ (1)
- 4.1.2 (a) Stoor/Berg urine ✓ (1)
(b) Beheer die gang van die urine vanaf die blaas na die uretra ✓ (1)

4.1.3

✓ (vir table)

A	B
Bevat meer stikstofhoudende afvalstowwe ✓	Bevat minder stikstofhoudende afvalstowwe ✓
Bevat meer voedingstowwe ✓	Bevat minder voedingstowwe ✓
Bevat meer suurstof ✓	Bevat minder suurstof ✓
Bevat minder koolstofdiksied ✓	Bevat meer koolstofdiksied ✓

(Sien slegs die eerste 3 verskille na) (3 x 2)

(Plus 1 vir tabel) (7)

- 4.1.4 - Persoon sal nie kan urineer nie ✓
- Metaboliese afvalstowwe/urine sal nie uit die liggaam verwyder word nie ✓
- en raak giftig ✓ vir die sel
- Oormatige water sal in die liggaam akkumuleer ✓
- wat sal veroorsaak dat die liggaam swel / lei tot edeem ✓
- die pH sal nie gereguleer word nie ✓
- wat tot die wanfunksionering van ensieme lei ✓
- En dit lei tot algehele nierversaking ✓
- wat tot die dood kan lei / wanfunksionering van ander organe ✓
- Groter moontlikheid vir vorming van nierstene ✓
- Groter moontlikheid vir infeksies ✓
- wat pyn kan veroorsaak ✓
- Inwendige bloeding ✓
a.g.v. opeenhoping van urine / druk wat opbou ✓

(Enige 5)

(5)

(17)

Seniorcertifikaat-eksamen

- 4.2 4.2.1 (a) Renale sekresie/afskeiding ✓ (1)
 (b) Herabsorpsie / absorpsie ✓ (1)
- 4.2.2 (a) - C ✓✓
 - as gevolg van totale / volledige ✓ herabsorpsie / absorpsie (3)
 - B ✓✓
- (b) - party word in die urine uitgeskei / as gevolg van gedeeltelike ✓ (3)
 herabsorpsie / absorpsie volgens die liggaam se behoeftes (8)

TOTAAL VRAAG 4: 25

VRAAG 5

- 5.1 5.1.1 - Temperatuur ✓
- Wind ✓
- Lig ✓
- Humiditeit ✓
- (Grond-)water ✓ **(Sien slegs die eerste 3 antwoorde na)** **(3)**
- 5.2 5.2.1 Substomatale opening/lugruimte/lugkamer ✓ **(1)**
- 5.2.2 Xerofitiese/droë/dorre/semi-dorre/woestyn/semi-woestyn ✓ **(1)**
- 5.2.3 - Stoma op die ventrale kant ✓ van die blaar
en is nie aan direkte sonlig blootgestel nie /
beperk waterverlies ✓
- Stomata is ingesonke ✓
wat 'n kamer vorm wat met waterdamp gevul kan word /
verlaag waterdampgradiënt ✓
- Die kutikula is dik ✓
om waterverlies deur die stomatale openinge te beperk ✓
- Aanwesigheid van hare/trigome ✓
wat die waterdamp kan binnehou ✓
- Dik epidermis ✓
beperk waterverlies ✓ **(Merk selgs eerste 4 antw^e)** **(4 x 2)** **(8)**
(10)
- 5.3 5.3.1 Om die suigkrag ✓ van transpirasie ✓/transpirasie-✓trekkrag✓ te
demonstreer **(2)**
- 5.3.2 Die tempo waarteen die kwik in die buis sal styg, sal stadiger wees ✓
OF
kwikvlak sal laer wees ✓ **(1)**
- 5.3.3 (a) - Kwik is swaar / baie dig ✓
deur opgetrek te word, toon dit hoe sterk die transpirasietrekkrag
is ✓
- Dit het 'n kenmerkende kleur ✓
wat groter sigbaarheid toelaat wanneer water deur die
blaaruitloopseel geabsorbeer word ✓
- Sal nie met water meng nie ✓
daarom kan jy sien hoe ver dit beweeg het ✓ **(Enige 1 x 2)** **(2)**
- (b) - Om te voorkom dat lug die xileem binnegaan ✓ **(2)**
wat die ingaan van die water ✓ in die xileem blokkeer / versper **(7)**

Seniorsertifikaat-eksamen

- 5.4 5.4.1 (15 g – 4 g) ✓ = 11 ✓ g ✓ (3)
- 5.4.2 - Is in die oplossing met die hoogste waterpotensiaal/swakste
oplossing / hipotoniese oplossing gedompel ✓
- daarom het daar oormatige endosmose plaasgevind ✓
- wat tot die hoogste massatoename gelei het ✓ (Enige 2) · (2)
(5)

TOTAAL VRAAG 5: 25

TOTAAL AFDELING B: 100

GROOTTOTAAL: 150