POSSIBLE ANSWERS
FEB / MARCH 2007

SECTION A

QUESTION 1

1.1

1.1.1 C ✓✓

1.1.2 D ✓✓

1.1.3 B ✓✓

1.1.4 C ✓✓

1.1.5 D ✓✓

1.1.6 A ✓✓

1.1.7 B ✓✓

(7 x 2) **(14)**

1.2

1.2.1 Hormones ✓

1.2.2 Tissue fluid /Intercellular fluid✓

1.2.3 Goitre ✓

1.2.4 Eustachian tube ✓

1.2.5 Radial ✓muscles

1.2.6 Choroid ✓

1.2.7 Loop of Henlé ✓

(7)

1.3

1.3.1 B ✓✓

1.3.2 E ✓✓

1.3.3 G ✓✓

1.3.4 A ✓✓

1.3.5 H ✓✓

1.3.6 C ✓✓

(6 x 2) **(12)**

1.4

1.4.1 Water loss/ tranpiration/ absorption ✓ (1)

1.4.2 - Make sure the apparatus is air tight✓ to prevent water vapour from escaping✓
- Insert the twig in water ✓ to prevent air bubbles✓
-Cut the twig under water✓ to prevent air bubbles✓ (4)
(Mark first two answers only)

1.4.3 - To move water upwards/ from the roots to the leaves/ for photosynthesis ✓
OR
- Evaporation of water causes a cooling effect ✓ (1)
(Mark first answer only) **(6)**

1.5

1.5.1 A - epidermal cell ✓
B -guard cell ✓ (2)

1.5.2

Epidermal cell	Guard cell
Even, thin walls✓	Thin outer wall and thick inner wall ✓
No chloroplasts ✓	Chloroplasts ✓
Irregular shape ✓	Bean-shaped ✓

(**Mark first two answers only)** (2 x 2)
table ✓ (5)

1.5.3 - C – Inner wall ✓ moves further/ closer ✓depending on vacuole size
- E – Chloroplast✓Photosynthesis affects the water potential of the cell / K^+ ions concentration influences water potential ✓ (4)
(11)

TOTAL QUESTION 1: 50
TOTAL SECTION A: 50

QUESTION 2

2.1

2.1.1 - B ✓ (1)

2.1.2 - C ✓ (1)

2.1.3 - D ✓ (1)

2.1.4 - A ✓ (1)

2.1.5 - Receptor receives stimulus/ stimulus converted to an impulse ✓ (1)

2.1.6 - Impulse conducted by sensory neuron / along dorsal root to spinal cord ✓ (1)

2.1.7 - Impulse directed by motor neuron from the central nervous system / along ventral root ✓ (1)

2.1.8 - Muscles / effector contract / hand pulled away from damaging fire ✓ (1)

2.1.9 Synapse ✓ (1)

2.1.10 Heat ✓
Pain ✓
(Mark first answer only) (2)
(11)

2.2

2.2.1 A - Semi- circular canal ✓
B - Utriculus ✓
C - Sacculus ✓ (3)

2.2.2 Endolymph / perilymph✓ (1)

2.2.3 - The perilymph ✓
prevents friction / and absorb shocks ✓
- The bone / situated deep inside the skull✓
protect structures against physical damage ✓
(Mark first two answers only) 2 x 2 (4)

2.2.4 A - Register movement of the head / speed and direction ✓
B - Respond to pull of gravity / position of head ✓ (2)

2.2.5 - Photoreceptors ✓
- Proprioceptors✓
(Mark first two answers only) (2)
(12)

2.3 - The sense of smell ✓
- is strongest / acute at birth ✓ and decreases as one gets older **(2)**

TOTAL QUESTION 2: 25

QUESTION3

3.1

3.1.1 Wrap baby in blanket / put on more clothes ✓ (1)

3.1.2 - Baby has larger surface ✓
- area to volume ratio ✓
- through which heat gets lost✓ (3)
(4)

3.2

3.2.1 C ✓ (1)

3.2.2 -To respond to an emergency
- blood is redirected ✓to
- where it is needed ✓from skin
- to bring more food✓
- and oxygen ✓
- for respiration✓
- to release energy to respond ✓ (Any 2) (2)

3.2.3 (a) A ✓ (1)

(b) C/ B ✓ (1)

3.2.4 A ✓ (1)

3.2.5 - Blood capillaries dilate ✓
-to bring more blood with fluids ✓
- that can use body heat ✓
-to bring about evaporation ✓
- to lower body temperature ✓ (Any 4) (4)
(10)

3.3

3.3.1 Hypophysis/Pituitary ✓ (1)

3.3.2 - Has no duct ✓
- to transport secretion/hormone away ✓
OR
- Secretion transported✓ away from gland
- by blood ✓ (2)

3.3.3 At the base of the brain/ in the head ✓ (1)

3.3.4 - Bones ✓
-Muscles ✓ (**Mark first two answers only)** (2)

3.3.5 - Growth of flat bones (skull) does not stop ✓
- while those of long bones stops ✓ (2)

3.3.6 Yes ✓ (1)

3.3.7 - Medication with a high GH concentration ✓
- Will promote lengthening of long bones ✓ (2)
(11)

TOTAL QUESTION 3: 25

QUESTION 4

4.1

4.1.1 - Removal ✓ of harmful substances / metabolic waste ✓
from the body (2)

4.1.2 - Regulating ✓ a constant water content / osmotic pressure / salt content ✓
in the body (2)

OR

- Controls the amount of water ✓
- entering / leaving the cells ✓ **(4)**

4.2.1 - Blood sample has proteins whereas sample 1 does not have them ✓ (1)

4.2.2 - Proteins too large ✓
- to filter into Bowman's capsule ✓ (2)

4.2.3 2,0 – 0,05✓ = 1,95 ✓ g/100cm^3 ✓ (3)

4.2.4 - Dye reabsorbed ✓
- into blood capillaries✓
- then secreted ✓
- back into renal tubes ✓ (Any 3) (3)

4.2.5 - Cells inside contain microvilli ✓
tube is highly folded /long✓
increasing the surface area ✓
- Many mitochondria present ✓
which release ATP ✓
to supply the energy ✓ (Any 2) (2 x 2) (4)
(13)

4.3.1 2 ✓ ml/min ✓ (2)

4.3.2 Decrease ✓ (1)

4.3.3 - On a hot day the body loses more water by sweating ✓
- ADH is secreted✓
- by the hypophysis ✓
- to make the collecting tubules ✓
- more permeable to water ✓
- water is conserved by the body/ less urine produced ✓
- hence concentrated / more yellow urine is secreted ✓ (Any 5) (5)
(8)

TOTAL QUESTION 4: 25

QUESTION 5

5.1

5.1.1 To demontrate root pressure ✓ (1)

5.1.2 - To exclude the suction force ✓of tranpiration ✓
OR
-since transpiration mainly ✓
takes place through the leaves **(Mark first answer only)** (2)

5.1.3 - Prevention of evaporation from glass tube /cover water with paraffin /oil ✓ (1)
(Mark first answer only)

5.1.4 - water diffuses from the soil/ by osmosis ✓
- through the root tissue ✓
- into the root xylem / stem ✓ (3)

5.1.5 - Root pressure causes exudation of water droplets ✓
- through the hydathodes / openings on leaf margins ✓
- at night✓
- when the air is humid ✓
- and stomata are closed✓ **(Any 4)** (4)

5.1.6 - High humidity ✓
- high soil water content ✓
- low temperature ✓
- closed stomata ✓ **(Mark first two answers only)** (2)
(13)

5.2

5.2.1 00:00 ✓ and 03:00 ✓ (2)

5.2.2 - Water intake increases / decreases ✓
- as transpiration increases / decreases✓

OR

- An increase / decrease in the one ✓
- leads to an increase / decrease in the other ✓ **(correct sequence)** (2)

5.2.3 - There is a decrease in the rate of water intake ✓ because
- Light intensity is decreasing ✓
- Less sugars formed/ rate of photosynthesis decreased ✓
- Water potential in guard cells increased ✓
- less endosmosis taking place ✓
- Turgidity of guard cells decreased ✓
- Stomatal pore size smaller / starting to close ✓ (5)
- Smaller suction force of transpiration ✓ (Any 5)

5.2.4 - root system/ root hairs ✓ (1)

5.2.5 -Takes place through the lenticels ✓
- that always remain open ✓

OR

- Still takes place through stomata ✓
- because they do not close completely ✓ (2)

(12)

TOTAL QUESTION 5: 25
TOTAL SECTION B: (100)

GRAND TOTAL: 150

AFDELING A

VRAAG 1

1.1

1.1.1 C ✓✓

1.1.2 D ✓✓

1.1.3 B ✓✓

1.1.4 C ✓✓

1.1.5 D ✓✓

1.1.6 A ✓✓

1.1.7 B ✓✓

(7 x 2) **(14)**

1.2

1.2.1 Hormone ✓

1.2.2 Weefselvloeistof ✓

1.2.3 Goiter ✓

1.2.4 Buis van Eustachias ✓

1.2.5 Radiale ✓spiere

1.2.6 Choroied ✓

1.2.7 Boog / Lus van Henlé ✓

(7)

1.3

1.3.1 B ✓✓

1.3.2 E ✓✓

1.3.3 G ✓✓

1.3.4 A ✓✓

1.3.5 H ✓✓

1.3.6 C ✓✓(6 x 2) **(12)**

1.4

1.4.1 Water verlies / transpirasie / absorpsie ✓ (1)

1.4.2 - Maak seker die apparaat is lugdig✓ voorkom dat waterdamp ontsnap ✓
- Plaas die takkie onder water ✓ om lugblasies te voorkom✓
-Sny takkie onder water af✓ om lugblasies te voorkom✓
(**Merk slegs eerste twee antwoorde**) (4)

1.4.3 - Water opwaarts te vervoer /vanaf die wortels na die blare/vir fotosintese ✓
OF
- Verdamping van water veroorsaak afkoeling ✓ (1)
(Merk slegs eerste antwoord) **(6)**

1.5

1.5.1 A - epidermale sel ✓
B - sluitsel ✓ (2)

1.5.2

Epidermale sel	Sluitsel
Eweredige dun selwande ✓	Dun buite wand en dik binne wand ✓
Geen chloroplaste ✓	Chloroplaste ✓
Onreelmatige vorm ✓	Boontjie vormig ✓

(**Merk slegs eerst twee antwoorde** (2 x 2)
tabel ✓ (5)

1.5.3 - C – Binne wand ✓ beweeg verder / nader ✓afhangend van vakuool grootte
- E – Chloroplaste✓Fotosintese beinvloed die waterpotensiaal / K^+ ione konsentrasie beinvloed die waterpotensiaal ✓ (4)
(11)

TOTAAL VRAAG 1: 50
TOTAAL AFDELING A: 50

VRAAG 2

2.1

2.1.1 - B ✓ (1)

2.1.2 - C ✓ (1)

2.1.3 - D ✓ (1)

2.1.4 - A ✓ (1)

2.1.5 - Reseptors ontvang stimulus / stimulus omskep tot 'n impuls ✓ (1)

2.1.6 - Impuls deur sensoriese neuron gelei / langs dorsale wortel na rugmurg ✓ (1)

2.1.7 - Impulse gestuur deur motoriese neuron vanaf sentrale senuweestelsel / langs die ventrale wortel✓ (1)

2.1.8 - Spiere/ effektors trek saam / hand word weggeruk vanaf vuur ✓ (1)

2.1.9 Sinaps ✓ (1)

2.1.10 Hitte ✓
Pyn ✓ **(Merk slegs eerste twee antwoorde)** (2)
(11)

2.2

2.2.1 A - Halfsirkelvormige kanale ✓
B - Utrikulus ✓
C - Sakkulus ✓ (3)

2.2.2 Endolimf / perilimf ✓ (1)

2.2.3 - Die perilimf ✓
voorkom wrywing / en absorbeer skokke ✓
- Die been / wat diep in die skedel gelee is✓
beskerm die strukture teen fisiese beserings ✓
(Merk slegs eerste twee antwoorde) 2 x 2 (4)

2.2.4 A - Registreer beweging van die kop / spoed en rigting ✓
B - Reageer op gravitasie aantrekking / posisie van die kop ✓ (2)

2.2.5 - Fotoreseptors ✓
- Proprioseptors✓ **(Merk slegs eerste twee antwoorde)** (2)
(12)

2.3 - Die waarneming van smaak ✓
- is sterkste / skerpste met geboorte ✓ en neem af soos persoon ouer raak **(2)**

TOTAAL VRAAG 2: 25

VRAAG 3

3.1

3.1.1 Draai baba in kombers toe / trek meer klere aan ✓ (1)

3.1.2 - Baba het 'n groter oppervlak area✓
- tot volume verhouding ✓
- waardeur hitte verloor kan word✓ (3)
(4)

3.2

3.2.1 C ✓ (1)

3.2.2 - Om te reageer in nood
- word meer bloed ✓
- vervoer na waar dit benodig wordi / ✓ na willekeurige spiere
- om meer voedsel✓
- en suurstof ✓
- vir verhoogde respirasie te verskaf✓
-en meer energie word vrygestel ✓ (Enige 2) (2)

3.2.3 (a) A ✓ (1)

(b) B /C ✓ (1)

3.2.4 A ✓ (1)

3.2.5 - Bloed kapilleres verwyd ✓
-om meer bloed met vloeistowwe te verskaf ✓
- wat liggaams hitte kan gebruik ✓
-sodat verdamping plaas kan vind ✓
- om liggaams temperatuur te verlaag ✓ (Enige 4) (4)
(10)

3.3

3.3.1 Hipofise ✓ (1)

3.3.2 - Het geen buis ✓
- om sekresie/hormone weg te vervoer nie ✓
OF
- Sekresie word weg vanaf klier vervoer ✓
- deur die bloed ✓ (2)

3.3.3 Aan die basis van die brein / in die kop ✓ (1)

3.3.4 - Bene ✓
- Spiere ✓ (**Merk slegs eerste twee antwoorde**) (2)

3.3.5 - Groei van platbene (skedel) stop nie ✓
- terwyl die groei van langbene stop ✓ (2)

3.3.6 Ja ✓ (1)

3.3.7 - Medikasie met 'n hoê konsentrasie GH ✓
- sal verlenging van die langbene bevorder ✓ (2)
(11)

TOTAAL VRAAG 3: 25

VRAAG 4

4.1

4.1.1 - Verwydering ✓ van skadelike stowwe / metaboliese afval ✓
uit die liggaam (2)

4.1.2 - Regulering ✓ van 'n konstante water inhoud/ osmotiese druk/ sout inhoud ✓
in die liggaam (2)

OF

- Beheer die hoeveelheid water ✓
- wat selle binnegaan / verlaat ✓ **(4)**

4.2.1 - Die bloed monsters bevat proteine, monster 1 bevat geen proteine ✓ (1)

4.2.2 - Proteine is te groot ✓
- om deur kapsel van Bowmans te filtreer ✓ (2)

4.2.3 2,0 – 0,05✓ = 1,95 ✓ g/100cm^3 ✓ (3)

4.2.4 - Kleurstof word geherabsorbeer ✓
- tot in bloed kapilleres✓
- dan terug gesekreteer ✓
- tot in nierbuise ✓ (Enige 3) (3)

4.2.5 - Die selle binne bevat mikrovilli ✓
en die buis is baie gevou/lank ✓
wat oppervlak area vergroot ✓
- Baie mitochondria teenwoordig ✓
wat ATP afskei ✓
om energie te verskaf ✓ (Enige 2) (2 x 2) (4)
(13)

4.3.1 2 ✓ ml/min ✓ (2)

4.3.2 Afneem ✓ (1)

4.3.3 - Op 'n warm dag verloor die liggaam meer water deur sweet ✓
- ADH word afgeskei✓
- deur die hipofise ✓
- om die versamelbuise ✓
- meer deurlaatbaar te maak vir water ✓
- water word in die liggaam bewaar/ minder uriene geproduseer ✓
- gevolglik uriene gekonsentreerde / meer geel uriene uitgeskei ✓ (Enige 5) (5)
(8)

TOTAAL VRAAG 4: 25

VRAAG 5

5.1

5.1.1 -Om worteldruk te demonstreer (1)

5.1.2 - om die suigkrag van transpirasie ✓uit te skakel
OF
-omdat transpirasie hoofsaaklik ✓
deur die blare plaasvind ✓ **(Merk slegs eerste antwoord)** (2)

5.1.3 - Om verdamping uit glasbuis te voorkom/ bedek water met olie/ paraffien ✓ (1)
(Merk slege eerste antwoord)

5.1.4 - water diffundeer vanaf grond / deur osmose ✓
- deur die weefsel van die wortel ✓
- tot in die xileem van die wortel/ stingel ✓ (3)

5.1.5 - Worteldruk veroorsaak die uitdruk van waterdruppels ✓
- deur die hidatodes / openinge op die blaarrande ✓
- gedurende die nag ✓
- wanneer die lug vogtig is ✓
- en die stomata gesluit is✓ **(Enig 4)** (4)

5.1.6 - Hoê humiditeit ✓
- Hoë water inhoud in die grond ✓
- Lae temperature ✓
- Geslote stomata ✓ **(Merk slegs eerste twee antwoorde)** (2)
(13)

5.2

5.2.1 00:00 ✓ **en** 03:00 ✓ (2)

5.2.2 - Water inname neem toe / af ✓
- soos transpirasie toeneem / afneem ✓
OF
- 'n toename / afname in die een ✓
- lei tot 'n toename / afname in die ander een ✓ **(korrekte volgorde)** (2)

5.2.3 - Daar is 'n afname in die tempo van water inname ✓ omdat
- die ligintensiteit afneem ✓
- Minder suikers word gevorm/ fotosintese tempo neem af ✓
- Waterpotensiaal in sluitselle neem toe ✓
- Endosmose neem af ✓
- Turgiditeit van sluitselle neem af ✓
- Grote van stomata poriee kleiner / begin sluit ✓
- Kleiner suigkrag van transpirasie ✓ (Enige 5) (5)

5.2.4 - wortelstelsel / wortelhare ✓ (1)

5.2.5 - Vind deur die lentiselle plaas ✓
- wat altyd oop is ✓
OF
- Vind steeds deur die stomata plaas ✓
- omdat dit nie volledig sluit nie ✓ (2)
(12)

TOTAAL VRAAG 5: 25
TOTAAL AFDELING B: (100)

GROOT TOTAAL: 150