

**GAUTENG DEPARTMENT OF EDUCATION
SENIOR CERTIFICATE EXAMINATION**

PHYSIOLOGY HG

QUESTION 1

- 1.1 B
- 1.2 B
- 1.3 B
- 1.4 B
- 1.5 D
- 1.6 D
- 1.7 A
- 1.8 D
- 1.9 C
- 1.10 C
- 1.11 B
- 1.12 C
- 1.13 B
- 1.14 B
- 1.15 B
- 1.16 A
- 1.17 B
- 1.18 C
- 1.19 D
- 1.20 B
- 1.21 B
- 1.22 C
- 1.23 D
- 1.24 A
- 1.25 A

25 x 2 = **[50]**

QUESTION 2

- 2.1 Accommodation
- 2.2 Maculae
- 2.3 Podocytes
- 2.4 Proprioceptors
- 2.5 Homeostasis
- 2.6 Cretinism
- 2.7 Endometrium
- 2.8 Vasoconstriction
- 2.9 Medulla oblongata
- 2.10 Renin

10 x 2 = **[20]**

QUESTION 3

1. Only B
2. None
3. A and B
4. None
5. Only A

[5]**QUESTION 4**

1. Endolymph
2. Cupula
3. Krista
4. Sensory hair cell
5. Otoliths
6. Macula
7. Vestibular nerve
8. Sacculus
9. Urethra
10. Ureter
11. Bladder
12. Ductus ejaculatorius
13. Sertoli cell
14. Spermatogonium
15. Seminiferous tubule

[15]
TOTAL FOR SECTION A: [90]

SECTION B
QUESTION 5

- 5.1.1 (a) Free nerve endings
 (b) Meissner's corpuscles
 (c) Pacinian corpuscles
 (d) Circumvallate papillae
 (e) End bulbs of Krause
 (f) Corpuscles of Ruffini
 (g) Cones of the retina

(7)

- 5.1.2 (a) 2 – In the ganglion of the dorsal root of the reflex arc√
 3 – In the grey matter of the spinal cord√

(2)

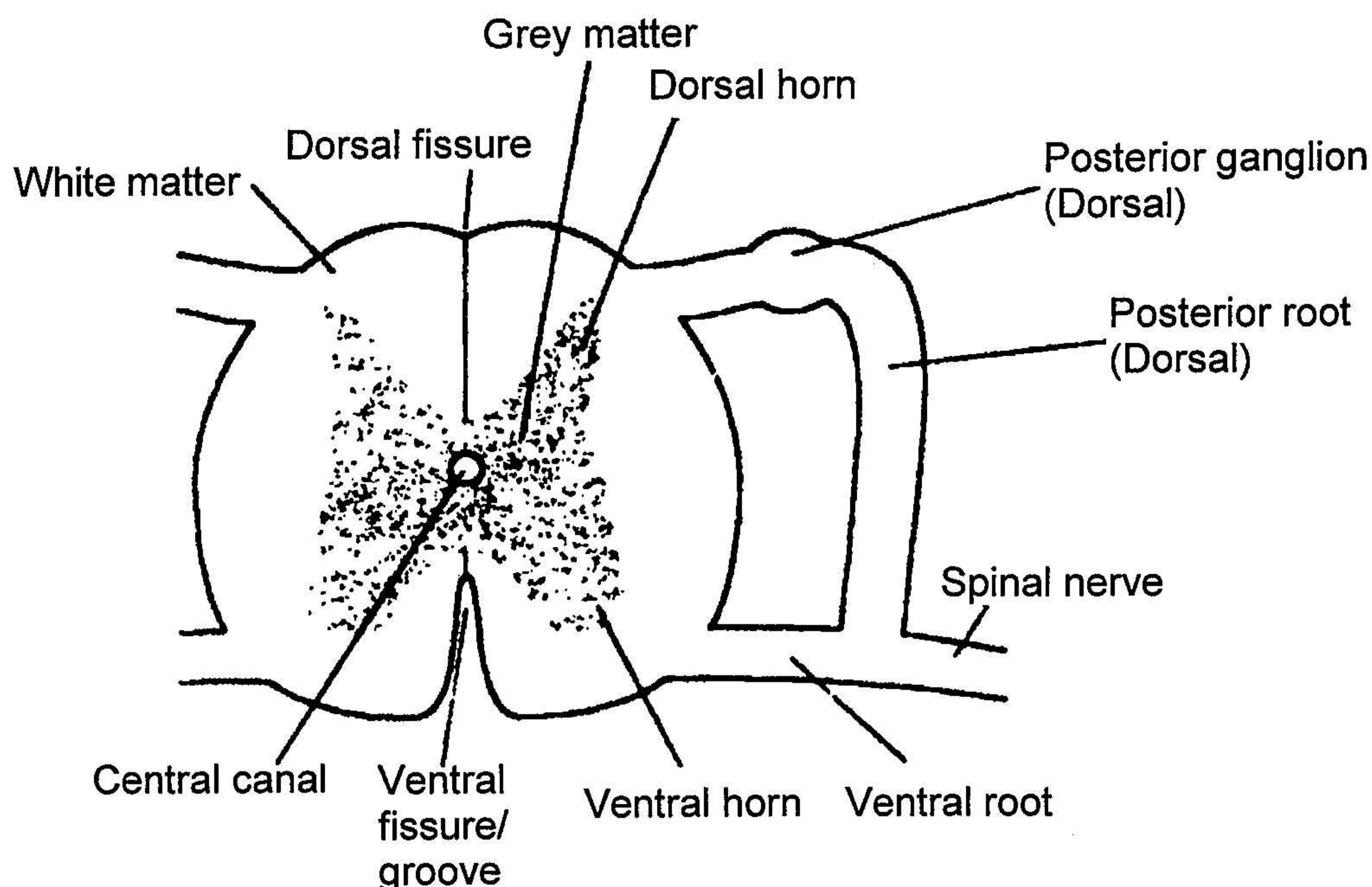
- (b) Synaps√

Functions:

- Allows impulses to travel in one direction only. √
- Increase intensity √ of various different reactions.

1+2=(3)

(c) Cross section of the spinal cord



1 x heading
1 x sketch
5 x labels (7)

- 5.1.3 (a) 2 – Monopolar / Unipolar ✓ / sensory / afferent neuron
3 – Connector / interneuron
5 – Multipolar ✓ / motor / efferent neuron (3)

- (b) 2 – Carry impulses from receptors towards the CNS
3 – Connection between sensory and motor neuron ✓ / serve as a reflex centre / also carries impulses to the brain
5 – Carry impulses from the CNS to the effectors ✓ (3)

- 5.1.4 (a) 6 – an effector (1)
(b) muscle, gland (2)

- 5.2.1 * Smooth, involuntary muscle ✓
* Cardiac muscle ✓
* Certain glands ✓ (3)

- 5.2.2 Hypothalamus ✓ and medulla oblongata ✓ / limbic system (2)

- 5.2.3 * Sympathetic nervous system ✓ and parasympathetic nervous system ✓
* Sympathetic nervous system prepares the body for action ✓, works together with the hormone adrenaline. ✓
* Stimulation of these nerves results in more oxygen, glucose and blood ✓ / being sent to the skeletal muscles ✓, speeding up cellular respiration to / release more energy for action. ✓
* The parasympathetic nervous system enables the body to recover from sympathetic stimulation ✓ return to normal.
* Most organs are innervated by ✓ both systems, double innervation. ✓
* The effects produced by each system are antagonistic.

2 + any 5 = (7)
[40]

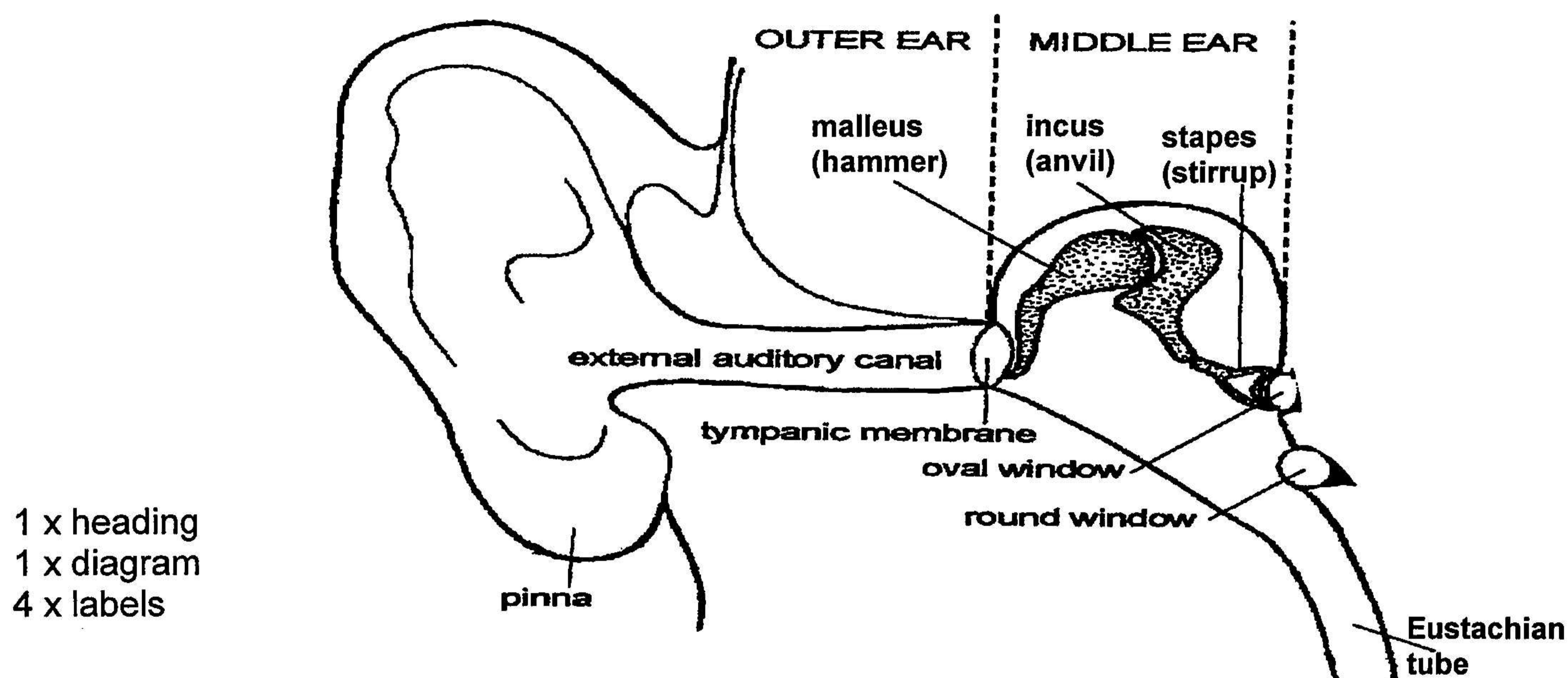
QUESTION 6

- 6.1.1 No. 1, 3, 4, 5 and 7 (Any 4 of 5)
- 6.1.2 No. 5 ✓ Conjunctiva ✓ (2)
- 6.1.3 * Papillary mechanism ✓
 * In bright light, under parasympathetic stimulation ✓ the:
 - circular iris muscle contracts ✓
 - the radial iris muscle relaxes ✓
 - the size of the pupil reduces / constricts ✓
 * Less light enters the back of the eye ✓, preventing ultra-violet rays from damaging the retina ✓ (7)
- 6.1.4 No 7 = sclera ✓
 - Strong, white inelastic outer layer ✓
 - Consists of connective tissue ✓
 - Covers posterior 5/6 of eyeball ✓
 Functions:
 - Protects inner parts of eye ✓
 - Provides attachment for 6 extrinsic eye muscles ✓
 - Maintains shape of eye ✓ 1+6=(7)
- 6.1.5
- Oily substance of Meibomian glands ✓
 - Enables free movement of the eye ✓
 - Helps foreign particles stick to lachrymal fluid. ✓ 1+2=(3)
 - Lachrymal fluid / tears ✓
 - Washes away dust particles ✓
 - Destroys germs with hydrolitic enzymes/ antiseptic ✓
 - Prevents eye from desiccation (drying out) ✓
 - Lubricates the movement of eyelids ✓
 - Distributes warmth across surface ✓ 1+2=(3)
 - Vitreous humour ✓
 - Transmits light ✓
 - Supports back of lens ✓
 - Holds retina firmly against choroids ✓
 - Equalises pressure / prevents eyeball from collapsing ✓ 1+2=(3)
 - Aqueous humour ✓
 - Provides nutrients and oxygen to lens and cornea ✓
 - Carries metabolic waste away ✓
 - Provides correct pressure in anterior chamber ✓ 1+2=(3)

6.1.6 Excess ✓ tears flow into tear duct (lachrymal duct) into the back of nasal passage ✓. (2)

6.2

Outer and middle ear



1 x heading
1 x diagram
4 x labels

(6)
[40]

QUESTION 7

7.1

- 7.1.1
1. interlobar artery
 2. renal artery
 3. renal vein
 4. interlobar vein
 5. efferent arteriole
 6. afferent arteriole
 7. glomerulus

(7)

7.1.2 (a) 8. glomerular filtrate ✓ 9. urine (2)

(b) If the pH of the blood decreases ✓ / too much H^+ :

In the tubular epithelial cells ✓ the amino acid ✓ glutamin ✓ be will deaminised ✓ to form ammonia ✓

The ammonia will diffuse into the filtrate ✓ and join the H^+ that is secreted from the blood ✓ to form ammonium ions (NH_4^+) that will be excreted with the urine. The pH is corrected ✓.

Ammonia acts as a buffer ✓, that is a chemical substance that prevents a a big change in the pH of a solution ✓. (any 10)

- 7.1.3 * ammonium * creatinine
 * urea * hyppuric acid
 * uric acid
 * urochromes * strange substances (any 5)

7.2

7.2.1 Exocrine gland:- This gland no.1√ secretes pancreatic juice√ and bicarbonate ions√ through the pancreatic duct√ into the target organ/(duodenum)√ where it assists digestion.

Endocrine gland: - No.2 secretes hormones insulin and glucagon√ through cells in the Islets of Langerhans√ in the pancreas√. The hormones are secreted directly into the blood√ which is transported to the target organ/liver. √ (any 7)

7.2.2 * When the glucose level in the blood is low√ e.g. after exercise√ / early in the morning the low blood sugar level is registered by the alpha cells in the Islets of Langerhans√ in the pancreas. Glucagon √ is secreted into the blood stream√. It stimulates the liver cells√ to convert glycogen√ into glucose (glycogenolysis) √. The glucose is secreted into the blood√ and increases the blood sugar level. The increase in blood sugar level inhibits the secretion of glucagon. (any 6)

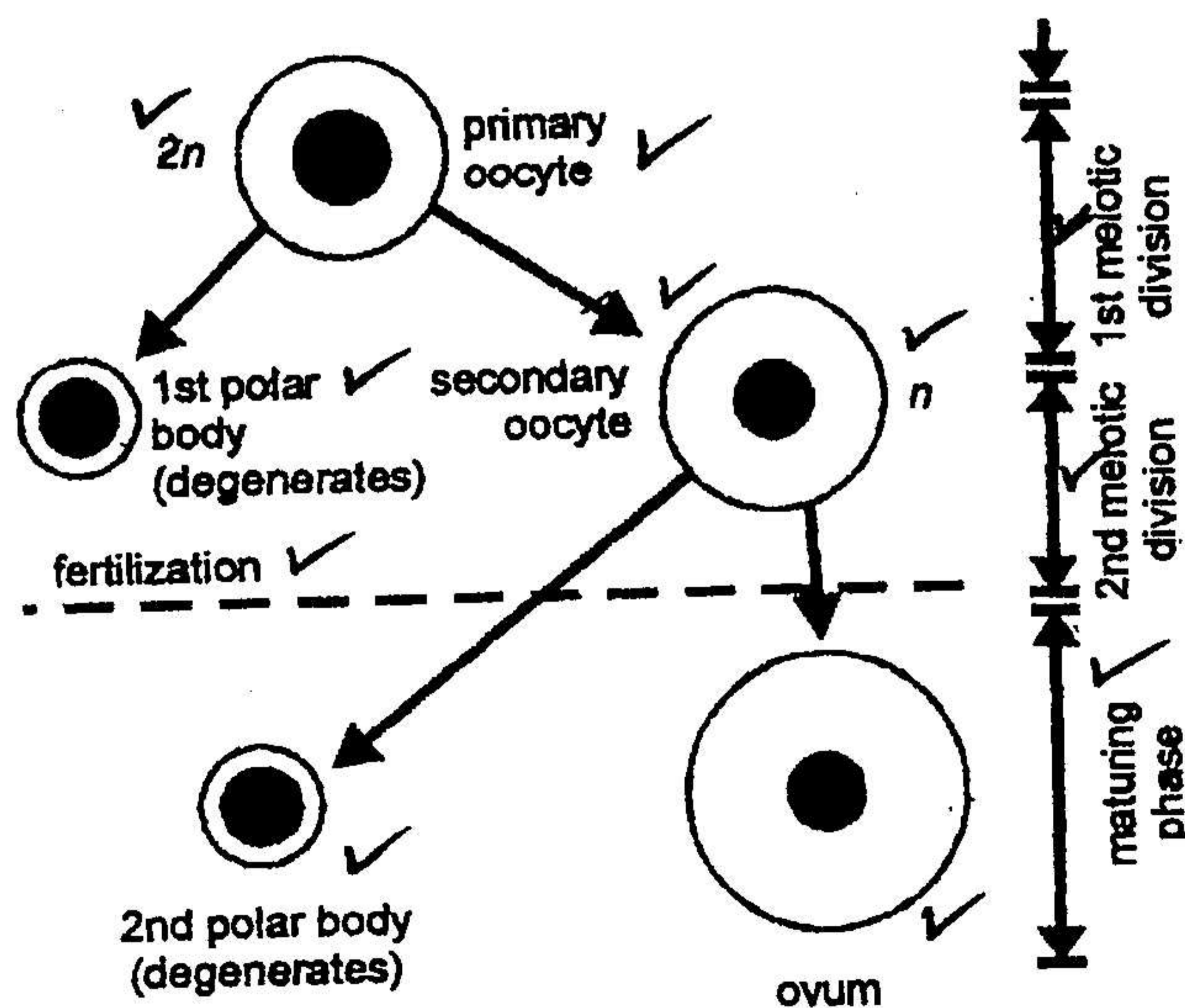
- 7.2.3 * Mostly proteins
 * Secreted by endocrine glands
 * Large effects in low concentrations
 * Short life span
 * Affects certain target organs which they stimulate or inhibit (Any 3)

[40]

QUESTION 8

OOGENESIS

8.1

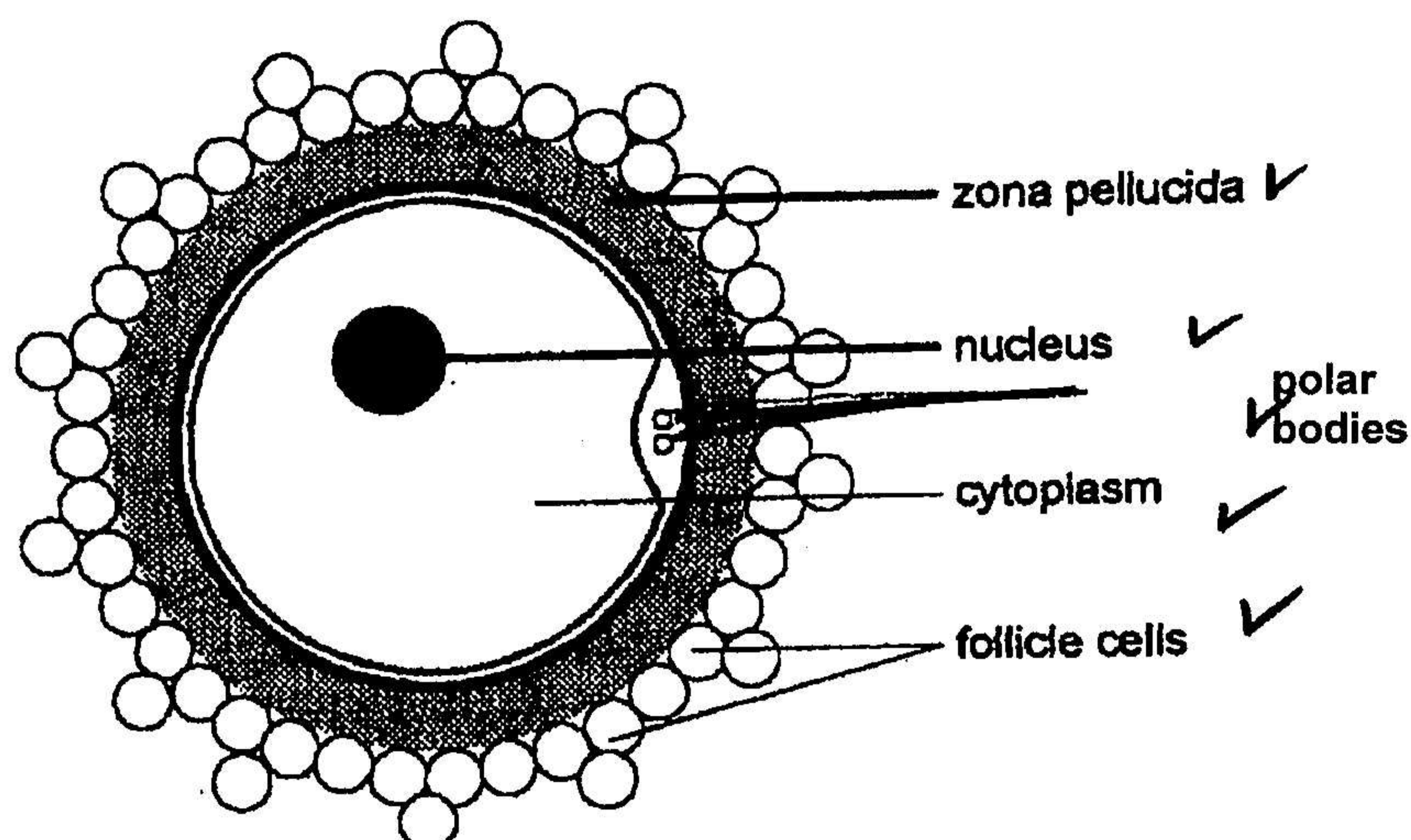


1 x heading
 10 x diagram

(11)

8.2

OVUM



1 x heading
4 x labels

(5)

- 8.3.1 In this case two ova were produced and matured at the same time ✓, multiple ovulation took place ✓. Two different spermatozoa ✓ were involved and both fertilized an ovum. Therefore non-identical twins ✓. They can be of the same sex ✓ or opposite sex ✓. Each one has its own placenta ✓.
(any 5)

8.3.2 The birth process:

- The hormone oxytocin ✓ stimulates the walls of the uterus to contract rhythmically ✓.
- The pressure in the uterus increases ✓, causing the amnion ✓ to break.
- The contractions of the uterine wall can be aided by contraction of abdominal muscles by the mother.
- The cervix expands, ✓ the vagina dilates ✓, and the baby is born head first ✓. Twenty minutes after birth the placenta becomes detached and is expelled after birth.

(any 6)

8.3.3 Oestrogen, progesterone, oxytocin, prolactin

(4)

8.4.1

• Healthy diet

- more proteins - growth ✓
- more calcium – calcifying of bones ✓
- more iron – extra haemoglobin ✓
- folic acid – prevent spina bifida ✓
- any other relevant facts ✓

(any 2 facts + reasons) (4)

8.4.2

- Substances to avoid:
 - Smoking – affects growth of foetus ✓
 - Alcohol – leads to FAS
 - Medicine ✓
 - Drugs ✓
 - Viruses e.g. rubella ✓
 - Any other relevant facts, e.g. irradiation, X-rays (5)

[40]

TOTAL FOR SECTION B: [160]

SECTION C QUESTION 9

- 9.1 Regulates the function ✓ of most of the other endocrine ✓ glands in the body. (2)
- 9.2 Pituitary gland ✓✓ (2)
- 9.3.1 Position
- Attached to hypothalamus ✓ at the base of the brain ✓
 - By the hypophyseal stalk ✓ / infundibulum
 - In a small bony cavity ✓ in floor of cranium Turkish saddle ✓ (4)
- 9.3.2 Anatomical structure
- Anterior lobe / Adenohypophysis ✓ - glandular ✓/ secretory cells – develops from roof of mouth ✓
 - Posterior lobe / Neurohypophysis ✓ - consists of nerve tissue ✓ - develops from base of brain ✓ (6)
- 9.3.3 Hypothalamic control
- Hypophysis under direct control of the hypothalamus ✓
 - Anterior lobe connected to hypothalamus by means of blood vessels ✓.
 - Capillary bed in hypothalamus and hypophysis ✓ forms a portal vein system ✓
 - Releasing factors are produced by hypothalamus ✓ – travels in the blood to anterior lobe ✓ - stimulating the lobe to produce and release the required hormones ✓.
 - The posterior lobe is connected to hypothalamus by means of nerve fibres / neurons / These are cell bodies in the hypothalamus / These neurons produce the hormones ✓ / which then pass down the fibres / axons ✓ and are stored in the posterior lobe ✓.
 - When the hormones are required, nerve impulses from the hypothalamus pass through the neurons to the posterior lobe and stimulate the posterior lobe to release the hormones ✓. (13)

9.4

Hormone	Function
1. Adenohypophyse STH / Growth hormone / Somatotrophic hormone	1. Promotes skeletal and muscular growth
2. TSH / Thyroid stimulating hormone / thyrotropin	2. Stimulates thyroid gland to secrete thyroxin.
3. ACTH / Adrenocorticotrophic hormone	3. Stimulates adrenal cortex to secrete its hormones
4. FSH / Follicle stimulating hormone	4. In females – development of Graafian follicle / In males – spermatogenesis
5. LH / Luteinizing hormone	5. Stimulates ovulation / development of corpus luteum.
6. ICSH / Interstitial cell stimulating hormone	6. Stimulates cells of Leydig / to produce testosterone
7. Prolactin	7. Stimulates milk production / develop maternal instinct.
8. MSH / Melanocyte stimulating hormone	8. Stimulates production of melanin in the melanocytes

8x2=(16)

9.5

- Hyposecretion of ADH ✓ – causes diabetes insipidus ✓ - excessive
thirst ✓ – loss of large quantities of diluted urine ✓
- No oxytocin ✓ will be secreted – Problems with uterine contractions ✓
during childbirth – problems with milk flow / lactation ✓

(7)
[50]**QUESTION 10**

10.1

Heart disease, alcohol, cancer

(3)

10.2

The uncontrollable ✓ excessive ✓ long-term ✓ intake of alcohol

(3)

10.3

- Cerebral atrophy (Shrinking of the brain)
- Memory loss
- Damage to CNS / polyneuritis
- Weakness of muscles / stumbling walk

(4)

10.4

Combination of various symptoms.

(1)

10.5.1

Vasodilation ✓ of capillaries in the skin.

(1)

- 10.5.2 – More blood flows to the skin ✓
 – More heat loss through ✓
 ▪ conduction ✓
 ▪ radiation ✓ and
 ▪ convection ✓
 – More sweat produced ✓ more evaporation ✓
 – Drop in body temperature ✓ (8)
- 10.6.1 The cerebellum
 • Coordinate actions of voluntary muscles ✓
 • Balance and equilibrium ✓
 • Controlling muscle tone ✓ (3)
- 10.6.2 Ataxia ✓✓ (2)
- 10.7.1 Placenta – Chorionic villi ✓ – Desidua ✓ (2)
- 10.7.2 Functions:
 – Respiration / gaseous exchange ✓ – provides oxygen ✓ to foetus and removes CO₂ ✓.
 – Nutrition ✓ e.g. glucose ✓ / diffuses from mothers blood to foetus ✓
 – Carbohydrates / e.g. stored in placenta ✓.
 – Nitrogenous waste / e.g. ✓ excreted into the maternal blood ✓.
 – Acts as microfilter ✓ that protects ✓ the body against pathogens ✓ / e.g.
 – Antibodies ✓ pass through the placenta providing passive immunity ✓.
 – As an endocrine gland ✓ the placenta secretes progesterone ✓ + oestrogen ✓ after three months ✓ to maintain pregnancy ✓.
 – Secretes relaxin ✓ to relax joints + ligaments during birth ✓
 – Secretes human chorionic gonadotropin (HCG) ✓ (Any 18 of 22) (18)
- 10.8 – ADH is secreted by the neurohypophysis ✓ which increases the permeability of the distal convoluted tubule ✓ and the collecting ducts ✓ for water.
 – Promotes water reabsorption, ✓ into peritubular capillaries. ✓
 – Less urine produced and blood pressure increases / returns to normal. ✓ (5 of 8) (5)
- [50]
- TOTAL: 300**

GAUTENGSE DEPARTEMENT VAN ONDERWYS
SENIORSERTIFIKAAT-EKSAMEN

FISIOLOGIE HG

VRAAG 1

- 1.1 B
- 1.2 B
- 1.3 B
- 1.4 B
- 1.5 D
- 1.6 D
- 1.7 A
- 1.8 D
- 1.9 C
- 1.10 C
- 1.11 B
- 1.12 C
- 1.13 B
- 1.14 B
- 1.15 B
- 1.16 A
- 1.17 B
- 1.18 C
- 1.19 D
- 1.20 B
- 1.21 B
- 1.22 C
- 1.23 D
- 1.24 A
- 1.25 A

25 x 2 = [50]

VRAAG 2

- 2.1 Akkommodasie
- 2.2 Makulae
- 2.3 Podosiete
- 2.4 Proprioseptore
- 2.5 Homeostase
- 2.6 Kretinisme
- 2.7 Endometrium
- 2.8 Vasokonstriksie
- 2.9 Medulla oblongata
- 2.10 Renien

10 x 2 = [20]

VRAAG 3

1. Slegs B
2. Geen
3. A en B
4. Geen
5. Slegs A

[5]

VRAAG 4

1. Endolimf
2. Kupula
3. Krista
4. Haarselreseptor
5. Otoliete
6. Makula
7. Vestibulêre senuwee
8. Sakkulus
9. Uretra
10. Ureter
11. Blaas
12. Ductus ejaculatorius
13. Sertoli-sel
14. Spermatogonium
15. Spermbuisie

[15]

TOTAAL VIR AFDELING A: [90]

AFDELING B**VRAAG 5**

- 5.1.1 (a) Naakte senuwee-eindpunte
 (b) Tasliggaampies van Meissner
 (c) Liggaampies van Pacini
 (d) Omwalde papille / circumvallatae papillae
 (e) Eindknoppe van Krause
 (f) Liggaampies van Ruffini
 (g) Keëltjies van die retina

(7)

- 5.1.2 (a) 2 – In die ganglion van die dorsale wortel van die refleksboog√
 3 – In die grysstof van die rugmurg√

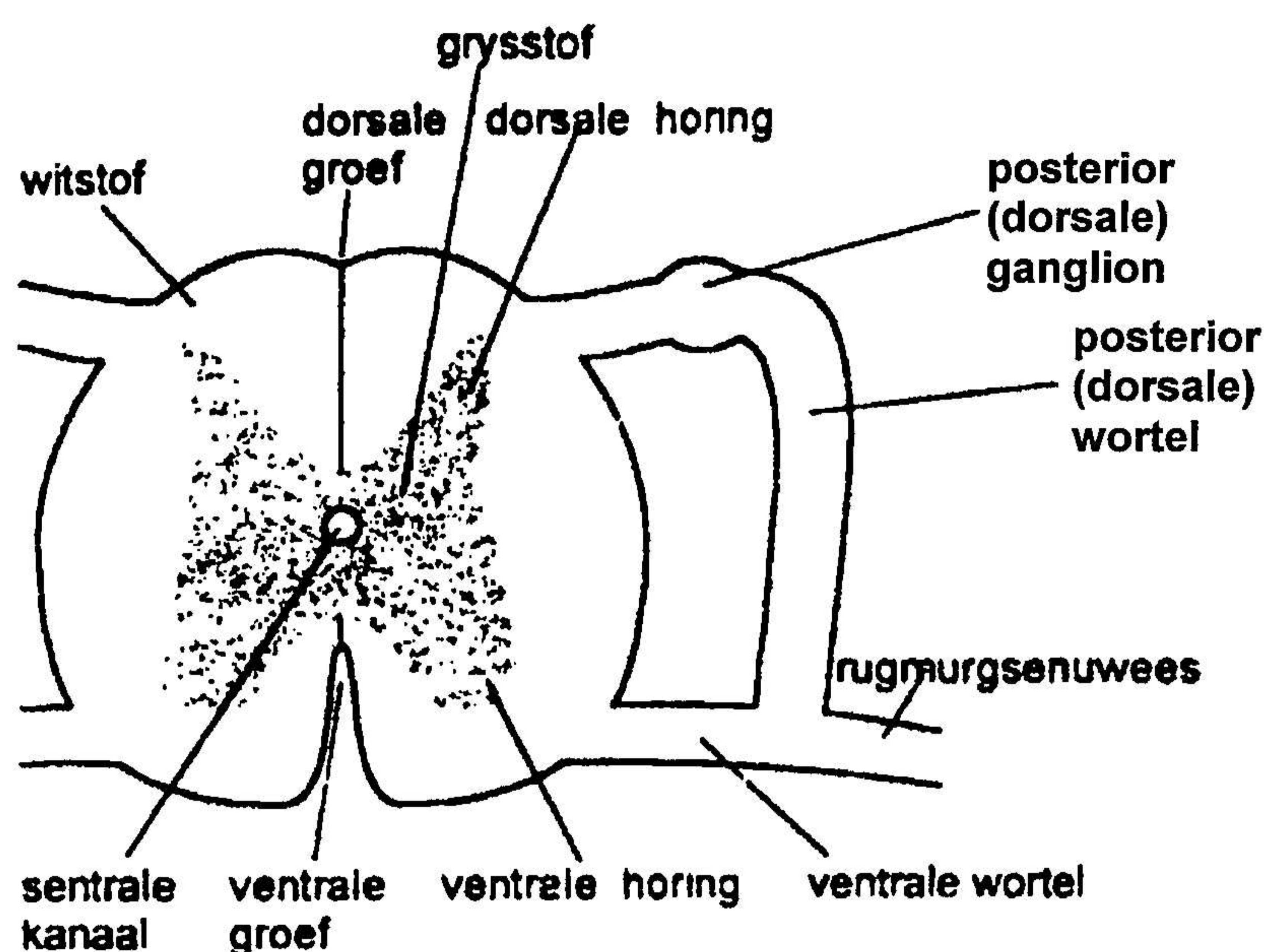
(2)

- (b) Sinaps√
 Funksies:

- Sinapse verseker dat impulse slegs in een rigting beweeg. √
- Hulle verhoog die intensiteite√ van verskeie uiteenlopende reaksies.

1+2=(3)

(c) Dwarssnit deur die rugmurg



1 x opskrif
1 x skets
5 x byskrifte (7)

- 5.1.3 (a) 2 – Monopolêre neuron ✓ / sensoriese neuron / afferente neuron
3 – Interneuron
5 – Multipolêre neuron ✓ / motoriese neuron / efferente neuron (3)
- (b) 2 – Vervoer impulse van reseptore na die rugmurg (SSS)
3 – Verbind die sensoriese neuron met die motoriese neuron ✓ / dien as 'n refleks-sentrum / gelei ook impulse na die brein
5 – Vervoer impulse van die SSS na die effektororgaan (3)
- 5.1.4 (a) 6 – 'n effektor ✓ (1)
(b) spier✓, klier✓ (2)
- 5.2.1 * Gladde, onwillekeurige spiere✓
* Hartspiere✓
* Sekere kliere✓ (3)
- 5.2.2 Hipotalamus✓ en medulla oblongata✓ / limbiese stelsel (2)
- 5.2.3 * Simpatiese senuweestelsel✓ en parasimpatiese senuweestelsel✓
* Simpatiese senuweestelsel berei die liggaam vir aksie voor✓. Werk saam met die hormoon, adrenalien. ✓
* Stimulasie van hierdie senuwees lei tot 'n toename in die hoeveelheid suurstof, glukose en bloed✓ / wat na die skeletspiere gestuur word✓, wat selrespirasie versnel✓/ meer energie vir aksie word vrygestel.✓
* Die parasimpatiese senuweestelsel stel die liggaam in staat om na simpatiese stimulasie te herstel/ na normaal terug te keer
* Meeste organe word deur beide stelsels geinnerveer✓ dit is dubbele innervering.✓
* Die effekte wat deur elke stelsel veroorsaak word, is antagonisties teenoor mekaar.

2 + enige 5 = (7)
[40]

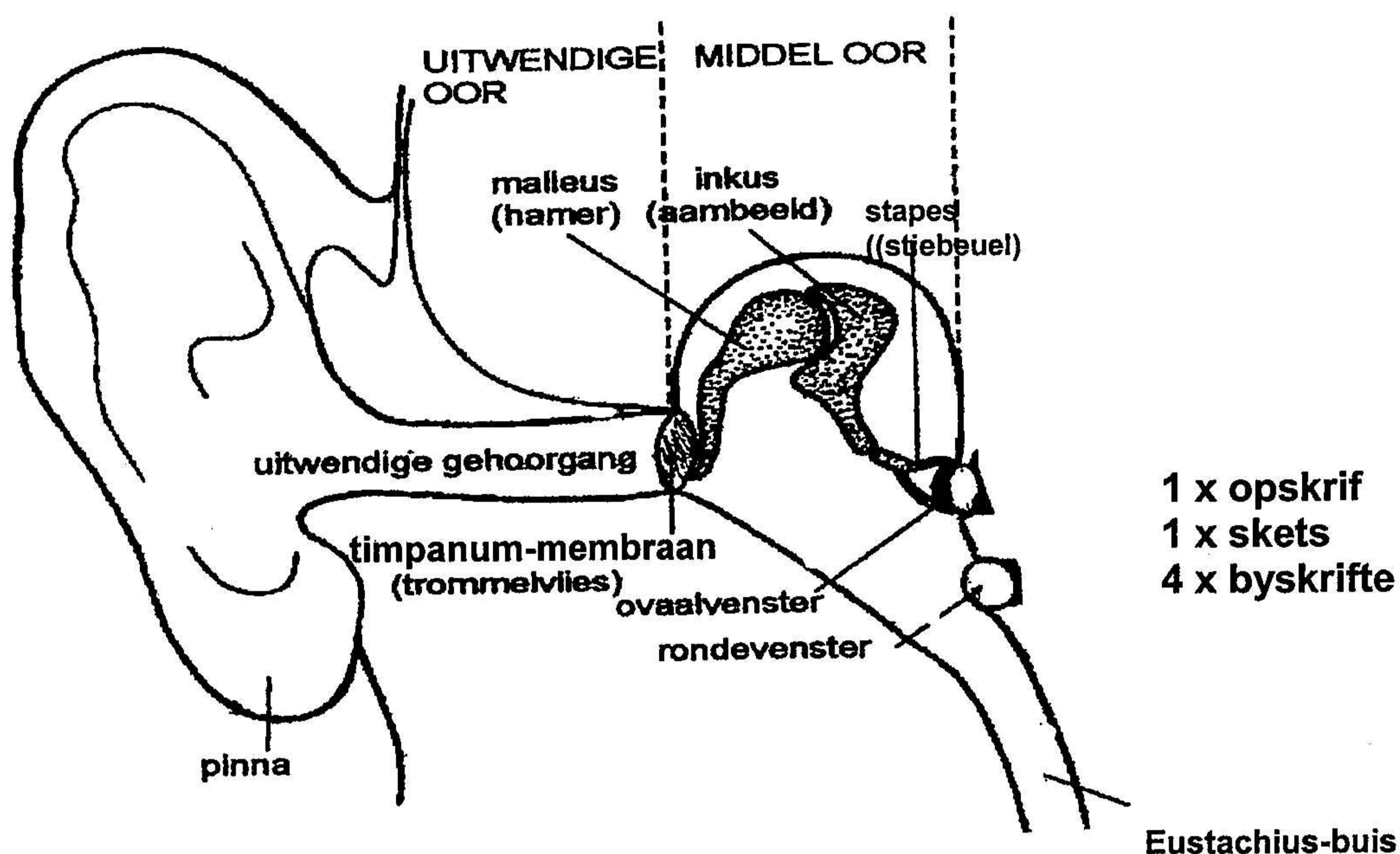
VRAAG 6

- 6.1.1 No. 1, 3, 4, 5 en 7 (Enige 4 van 5) (4)
- 6.1.2 No. 5 ✓ Konjunktiva ✓ (2)
- 6.1.3 * Pupilmeganisme ✓
 * In helder lig, tydens parasimpatiese stimulasie sal: ✓
 - kringspiere van die iris saamtrek ✓
 - radiale spiere van die iris verslap ✓
 - pupil verklein ✓ / grootte afneem (kleiner word)
 * Minder lig gaan na agterkant van die oog ✓, verhoed dat die ultravioletstrale die retina beskadig ✓ (7)
- 6.1.4 No 7 = sklera ✓
 – Sterk, wit onelastiese buitelaaglaag ✓
 – Bedek die agterste 5/6 van die oogbal ✓
 – Bestaan uit bindweefsel ✓
 Funksies:
 – Beskerm die inwendige dele van die oog ✓
 – Voorsien aanhegting vir die ses uitwendige oogspiere ✓
 – Behou vorm van die oog ✓ 1+6=(7)
- 6.1.5
- Olierige vloeistof van Meiboom-klier ✓
 - Maak dat die oog vry kan beweeg ✓
 - Help vreemde voorwerpe om aan die traanvog vas te kan kleef ✓ 1+2=(3)
 - Lakrimale vloeistof / trane ✓
 - Was stofdeeltjies weg ✓
 - Vernietig kieme ✓ met hidrolitiese ensieme
 - Verhoed desikkasie (uitdroging) ✓
 - Smeer die ooglede ✓
 - Versprei hitte oor die oppervlak van die oog ✓ 1+2=(3)
 - Glasagtige vog ✓
 - Laat lig deur ✓
 - Ondersteun die agterkant van die lens ✓
 - Hou die retina ferm teen die choroïed ✓
 - Hou vloeistofdruk konstant / voorkom dat oogbal inmekaar val ✓ 1+2=(3)
 - Waterige vog ✓
 - Voorsien voedingstowwe en suurstof aan lens en kornea ✓
 - Vervoer metaboliese afvalprodukte weg ✓
 - Voorsien korrekte druk in voorste oogkamer ✓ 1+2=(3)

- 6.1.6 Oortollige trane vloeï in die traanbuis✓ en word na die agterste neusgang✓ weggevoer. (2)

6.2

UITWENDIGE EN MIDDELOOR



1 x opskrif
1 x skets
4 x byskrifte

(6)
[40]

VRAAG 7

7.1

- 7.1.1
1. interlobêre slagaar / arterie
 2. nierslagaar / renale arterie
 3. nieraar / renale vena
 4. interlobêre aar / vena
 5. efferente arteriool
 6. afferente arteriool
 7. glomerulus
- (7)

- 7.1.2 (a) 8. glomerulêre filtraat✓ 9. urine (2)

(b) Indien die pH van die bloed te laag daal✓ / te veel H^+ .
Deaminasie van die aminosuur✓, glutamiën✓ sal plaasvind en ammoniak sal vorm✓ en deur die buisepiteel-selle✓ afgeskei word✓.
Die ammoniak diffundeer tot in die filtraat✓ en bind met oortollige H^+ wat uit die bloed gesekreteer✓ is om ammonium-ione (NH_4^+)✓ te vorm wat saam met die urine✓ uitgeskei word.
Die pH word na normaal herstel✓.
Ammoniak dien as 'n buffer,✓ 'n chemiese stof wat groot pH-veranderinge voorkom✓. (enige 10)

- 7.1.3 * ammonium * kreatinien
 * ureum * hippuursuur
 * uriensuur
 * urochrome * vreemde stowwe (enige 5)

7.2

7.2.1 Eksokriene klier:– hierdie klier no.1√ skei pankreassap√ en bikarbonaat-ione af√ deur die pankreasbuis√ af in die teikenorgaan√ (duodenum), waar dit met die spysverteringsproses help√.

Endokriene klier:– No.2√ skei hormone, nl. insulien en glukagon√. af deur selle in die eilandjies van Langerhans√ in die pankreas.√. Dié hormone word direk in die bloedstroom afgeskei√ en na die teikenorgaan/lower vervoer√.

(enige 7)

- 7.2.2 * Wanneer die glukosevlak in die bloed laag is bv.√ na 'n oefensessie√ óf vroeg in die oggend√, word die lae bloedsuikervlakke deur die alfaselle in die eilandjies van Langerhans geregistreer√. Glukagon√ word in die bloedstroom afgeskei√ Dit stimuleer lewerselle√ stimuleer om glikogeen√ af te breek na glukose (glikogenolise) √. Die lewer stel dan die glukose in die bloed vry√ en verhoog die bloedsuikervlak.

Die styging in die bloedsuikervlak inhibeer die afskeiding van glukagon.

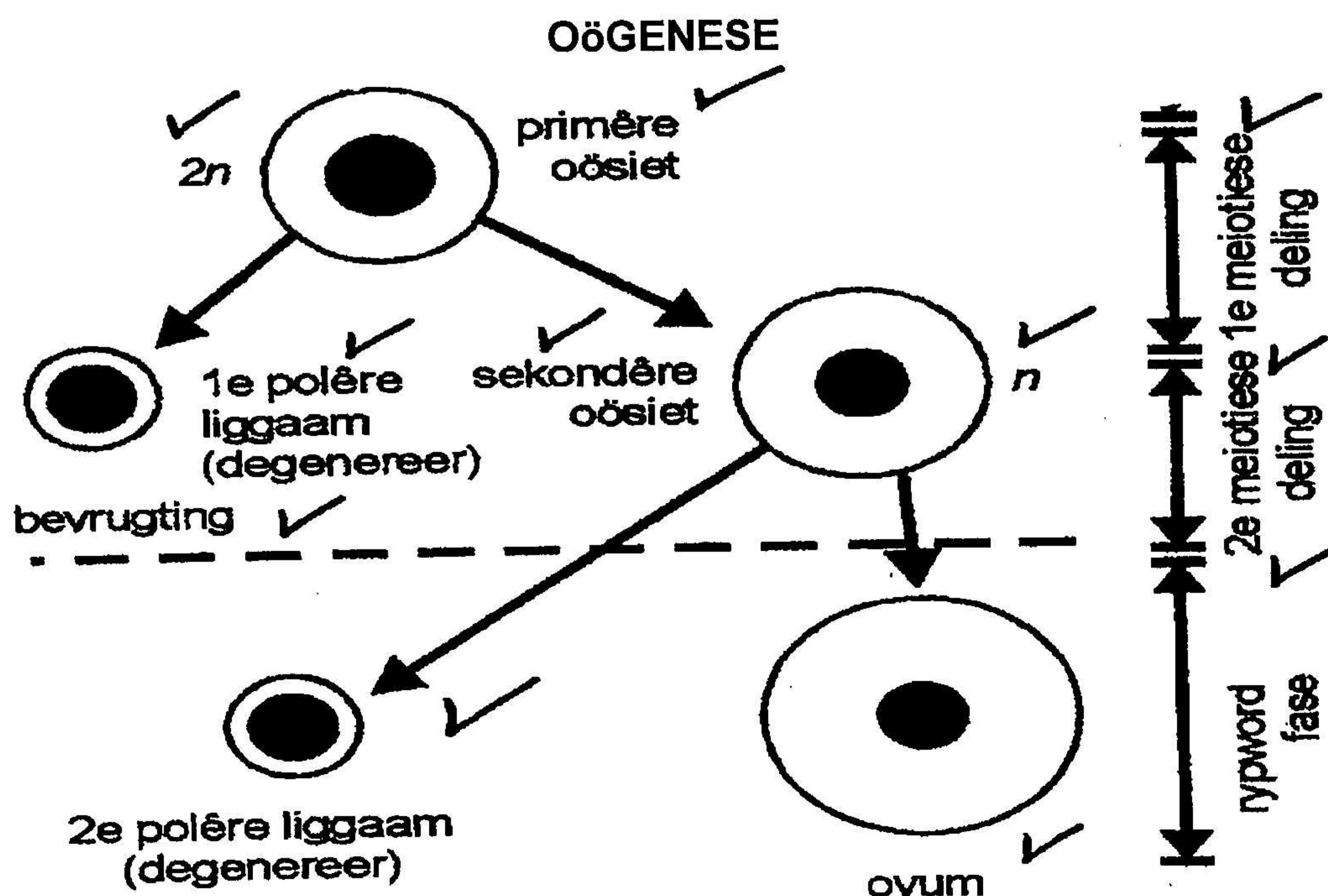
(enige 6)

- 7.2.3 * Is meestal proteïene√
 * Deur buislose/ endokriene-kliere vrygestel√
 * Groot invloed in lae konsentrasies√
 * Kort leeftyd√
 * Affekteer spesifieke teikenorgane wat hulle stimuleer / inhibeer (enige 3)

[40]

VRAAG 8

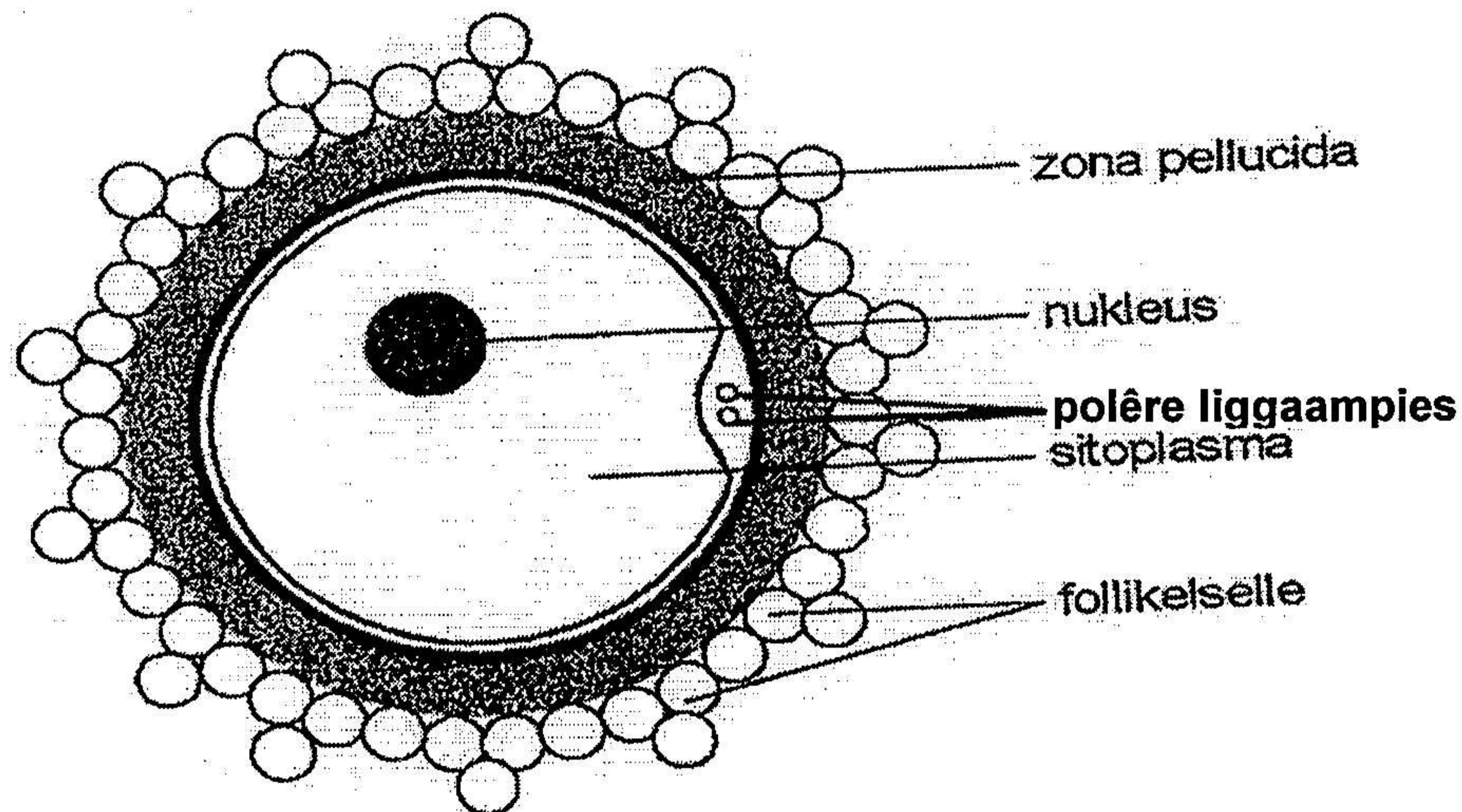
8.1

1 x opskrif
10 x skema

(11)

8.2

OVUM



1 x opskrif
4 x byskrifte

(5)

8.3.1 In hierdie geval was twee ova op dieselfde tyd ryp, en is afgeskei (meervoudige ovulasie). Twee verskillende sperms was betrokke en elkeen het 'n ovum bevrug. Daarom is hierdie 'n nie-identiese tweeling. Hulle kan van dieselfde of teenoorgestelde geslag wees. Elkeen het sy eie plasenta.

(enige 5)

8.3.2 Die geboorteproses:

- Die hormoon oksitosien stimuleer die wande van die uterus om ritmies saam te trek.
- As die proses begin, verhoog die druk in die uterus, die amniotiese membraan breek dan "water het gebreek".
- Spiersametrekking in die uteruswande word aangehelp deur sametrekking van die maagspiere deur die moeder.
- Serviks vergroot en die baba word kop eerste gebore. Twintig minute na die geboorteproses raak die plasenta los en word die "nageboorte" uitgeskei.

(enige 6)

8.3.3 Estrogeen, progesteron, prolaktien en oksitosien

(4)

8.4.1

- Gesonde diet

- meer proteïene vir groei
- meer kalsium vir die kalsifisering van baba se bene
- meer yster vir meer hemoglobien
- foliensuur voorkom spina bifida
- en enige ander relevante feite

(enige 2 feite + redes)

(4)

8.4.2

- Stowwe om te vermy:
 - Rook ✓ beïnvloed groei van fetus
 - Alkohol ✓ lei tot FAS
 - Medisyne ✓
 - Dwelmmiddels ✓
 - Virusse soos Duitse masels ✓
 - Ander relevante feite, bv. x-strale, bestraling. (5)

[40]

TOTAAL VIR AFDELING B: [160]

AFDELING C**VRAAG 9**

- 9.1 Reguleer ✓ die funksies van die meeste ander endokriene kliere ✓ in die liggaam. (2)
- 9.2 Pituitêre klier ✓✓ (2)
- 9.3.1 Posisie
 - Aan die hipotalamus ✓ aan die basis van die brein ✓
 - Vasgeheg met die hipofiseale steel ✓ / infundibulum
 - In 'n klein benerige holte ✓ in die vloer van die kranium, nl. Turkse saal ✓ (4)
- 9.3.2 Anatomiese bou of struktuur
 - Anterior lob / Adenohipofise ✓ / sekretoriese selle / klierryk ✓ - ontwikkel uit die dak van die mond ✓
 - Posterior lob / Neurohipofise ✓ - bestaan uit senuweeweefsel ✓ - ontwikkel uit die basis van die brein ✓ (6)
- 9.3.3 Hipotalamiese beheer
 - Hipofise is onder direkte beheer van die hipotalamus ✓
 - Anterior lobom is met bloedvate ✓ aan hipotalamus verbind
 - Daar is 'n kapillêre vertakking in sowel die hipotalamus as die hipofise ✓ wat 'n poortaarstelsel vorm ✓.
 - Vrystellingsfaktore ✓ word deur die hipotalamus geproduseer wat in die **bloed** ✓ na die anterior lob vervoer word. Die faktore stimuleer die anterior lob, vereiste hormone ✓ te produseer en af te skei.
 - Die posterior lob is met senuwesels / neurone aan die hipotalamus verbind ✓. Selliggame is in die hipotalamus ✓. Hierdie neurone produseer die hormone ✓ wat dan met die senuwesels / aksone ✓ na posterior lob vervoer word en in die posterior lob gestoor word ✓.
 - As die hormone benodig word, beweeg senuwee-impulse vanaf die hipotalamus met die neurone langs en stimuleer die posterior lob om hormone vry te stel ✓. (13)

9.4

Hormoon	Funksie
1. Adenohipofise STH / Groeihormoon / Somatotrofiëse hormoon.	1. Bevorder skelet- en spiergroei
2. TSH / Tiroïed-stimulerende hormoon / tirotropien	2. Stimuleer tiroïedklier om tiroksien af te skei.
3. AKTH / adrenokortikotrofiëse hormoon	3. Stimuleer adrenale korteks om sy hormone vry te stel.
4. FSH / follikelstimulerende hormoon	4. Stimuleer groei en ontwikkeling van Graaf-follikels by vroue /by mans spermatogenese
5. LH / Luteïeniseringshormoon	5. Stimuleer ovulasie / ontwikkeling van corpus luteum
6. ISSH / Interstisiële-selstimulerende hormoon	6. Stimuleer selle van Leydig om testosteroon af te skei
7. Prolaktien	7. Stimuleer produksie van melk / ontwikkeling van moederinstink
8. MSH / Melanosietstimulerende hormoon	8. Stimuleer produksie van melanien in melanosiete

(16)

9.5

- Onderafskeiding van ADH √ veroorsaak diabetes insipidus √ wat lei tot 'n onversadigbare dors √ en 'n verlies aan groot hoeveelhede verdunde urine √
- Oksitosien √ wat nie afgeskei word nie, lei tot probleme met uterus-sametrekking tydens die geboorteproses √ Laktasie sal ook geïnhibeer word. √

(7)
[50]**VRAAG 10**

10.1

Alkohol, hartsiektes en kanker

(3)

10.2

Die onbeheerbare, √ oormatige √ en langdurige inname van alkohol √

(3)

10.3

- Serebrale atrofie / inkringing van die brein
- Swak geheue
- Skade aan SSS / polineuritis
- Swakheid van liggaamspiere / struikelende loopgang.

(4)

10.4

'n Kombinasie van verskeie simptome.

(1)

10.5.1

Vasodilatasie √ van die kapillêres in die gesig.

(1)

- 10.5.2 – Meer bloed vloei na die vel ✓
 – Meer hitteverlies deur: ✓
 ▪ geleiding ✓
 ▪ stroming ✓
 ▪ uitstraling ✓
 – Meer sweet word geproduseer ✓ wat lei tot meer verdamping ✓
 – Liggaamstemperatuur daal ✓ (8)
- 10.6.1 Die serebellum
 • Koördineer reaksies van die willekeurige spiere ✓
 • Balans en ewewig ✓
 • Beheer spiertonus ✓ (3)
- 10.6.2 Ataksie. ✓✓ (2)
- 10.7.1 Plasenta - Decidua ✓ en chorioniese villi ✓ (2)
- 10.7.2 Funksies:
 – Tydens gaswisseling / respirasie ✓ voorsien die plasenta O₂ aan die fetus ✓ en verwyder afvalstowwe en CO₂ ✓.
 – Voedingstowwe ✓ soos glukose ✓ / diffundeer deur die plasenta vanaf die moeder se bloed na fetus ✓.
 – Stowwe soos koolhidrate / kan in die plasenta gestoor ✓ word.
 – Stikstofbevattende afvalstowwe ✓ word deur die plasenta na die moeder se bloed uitgeskei / geëkskretieer ✓
 – Mikrofilter ✓ wat die liggaam beskerm ✓ teen patogene ✓ 'n vb.
 – Teenliggaampies beweeg ✓ deur plasenta en bied passiewe immuniteit ✓
 – As endokriene klier ✓ sekreteer die plasenta progesteron ✓ en estrogeen ✓ na drie maande ✓ om swangerskap te onderhou ✓.
 – Skei relaksien af ✓ wat spiere en gewigte ontspan tydens die geboorteproses ✓
 – Skei menslike chorioniese gonadotropien af. ✓ (18 uit 22) (18)
- 10.8 – ADH word afgeskei deur die neurohipofise ✓ verhoog sodoende die deurlatendheid ✓ van die distale kronkelbuis ✓ en versamelbuis vir H₂O ✓.
 – Meer H₂O word deur die peritubulêre vate ✓ geherabsorbeer ✓.
 – Minder urine word geproduseer en bloeddruk styg / keer na normaal terug. ✓ (5 uit 8) (5)
- [50]
- TOTAAL: 300**