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Iphondo leMpuma Kapa: Isebe leMfundo  
Provinsie van die Oos Kaap: Department van Onderwys  
Porafensio Ya Kapa Botjhabela: Letapha la Thuto

# **NATIONAL SENIOR CERTIFICATE**

**IBANGA 12**

**SEPTEMBER 2024**

**LIFE SCIENCES P1  
ISIKHOKELO SOKUMAKISHA**

**AMANQAKU: 150**

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Eli phepha lemibuzo linamaphepha ali10.

**IMIYALELO YOKUKOREKISHA ILIFE SCIENCES**

1. **Ukuba iimpindulo zingaphezu kwamanqaku anikiweyo.**  
Yeka ukukorekisha xa ufikelele kumanqaku aphezulu ubonise ngomgca ogoso no 'max' kwi majini esekunene
2. **Ukuba, umzekelo, kufunwa izizathu ezithathu ze kunikwe ezihlanu**  
Korekisha isithathu sokuqala kuphela nokuba ezilandelayo zamkelekile okanye azamkelekanga.
3. **Ukuba yonke inkqubo inikwe nakubeni bekufuneka inxalenye yayo**  
Yifunde yonke uze unike amaqaku kuloo ndawo ifanelekileyo.
4. **Ukuba kubuzwe uthelekiso ze kunikwe iinkcazelo**  
Zamkele xa zibekwe wacaca umahluko nezinto ezifana ngazo.
5. **Ukuba kufunwe impindulo ngetheyibhuli ze anike imihlathi**  
Abafundi baya kuphulukana namanqaku ngoko.
6. **Ukuba imizobo inikwe yaneeannotation endaweni yeenkcazelo ezifunwayo**  
Abafundi baya kuphulukana namanqaku.
7. **Ukuba imizobo inikwe yaneeannotation endaweni yeenkcazelo ezifunwayo**  
Abafundi baya kuphulukana namanqaku.
8. **Ukuba ulandelelwano lwezinto ngendlela efanelekileyo alwenzekanga**  
Abafumani manqaku. Apho lwenzekileyo ngokwamkelekileyo nika amaqaku
9. **Ushunqulelo olungamkelekanga**  
Lwamkeleke ukuba luye lwachazwa kwimpindulo kuqala. Ukuba aluchazangwa kuqala ungalwamkeli kodwa uzamkele iimpindulo ezilandelayo
10. **Ukunombola ngokungafanelekanga**  
Ukuba iimpindulo zihamba ngendlela elindellekileyo kodwa inombolo azibhalwanga ngokukuko, makafumane amaqaku.
11. **Ukuba ulwimi olusetyenzisiweyo luyayitshintsha intsingiselo**  
Impindulo ayamkelekanga
12. **Upelo olugwenxa**  
Ukuba lusondele, yamkela ukuba ayinalo elinye igama elinaloo ntsingiselo kwiLife Sciences okanye ngaphandle komxholo.
13. **Ukuba izithetha ntonye zinikiwe**  
Zamkele ukuba zamkelekile ngokweengxoxo zememo kwa national
14. **Ukuba impindulo ifuna unobumba kwaze kwanikwa igama endaweni yoko**  
Makangafumani manqaku.

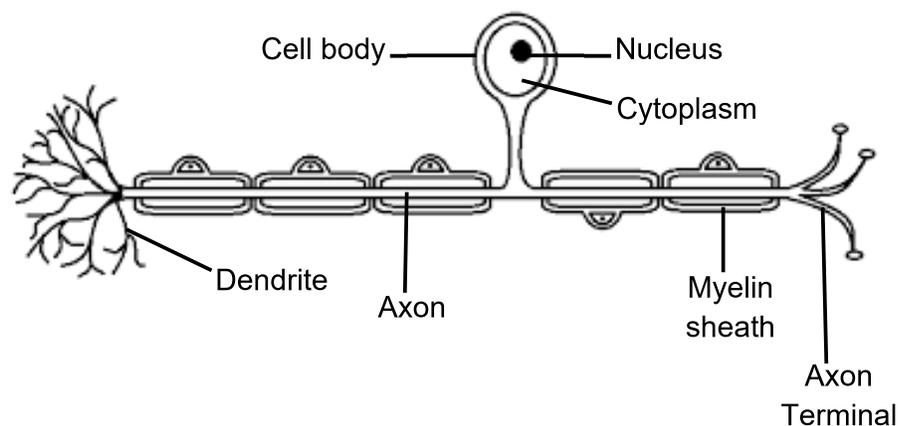
15. **Ukuba iiyunithi azinikwanga kumnta**  
Abaviwa bayakuphulukana namanqaku. Isikhokelo sokukorekisha sabela iiyunithi amanqaku ecaleni.
16. **Qaphela iimpindulo ezinokunikwa ngenye indlela zibe zamkelekile**
17. **Isihloko**  
Yonke imibuzo (iidayagram, iigrafu, theyibhile, njalonjalo) mazibenesihloko.
18. **Ukutshintshatshintsha iilwimi (iiterm neeconcept)**  
Ukuba umviwa usebenzise igama elinye okanye amabini kwiimpindulo zakhe asuka kwezinye iilwimi ezisemthethweni kodwa ingelulo olu avavanywa ngalo, makafumane amanqaku ukuba iimpindulo zamkelekile. Makucelwe ukorekishi olwaziyo ncakasana olo lwimi ancede.

## ICANDELO A

## UMBUZO 1

- |     |       |  |                    |      |
|-----|-------|--|--------------------|------|
| 1.1 | 1.1.1 | A ✓✓   |                    |      |
|     | 1.1.2 | B ✓✓   |                    |      |
|     | 1.1.3 | C ✓✓   |                    |      |
|     | 1.1.4 | A ✓✓   |                    |      |
|     | 1.1.5 | C ✓✓   |                    |      |
|     | 1.1.6 | B ✓✓   |                    |      |
|     | 1.1.7 | D ✓✓   |                    |      |
|     | 1.1.8 | A ✓✓   |                    |      |
|     | 1.1.9 | C ✓✓   | (9 x 2)            | (18) |
| 1.2 | 1.2.1 | Receptor ✓   |                    |      |
|     | 1.2.2 | Chorion ✓  |                    |      |
|     | 1.2.3 | Effector ✓   |                    |      |
|     | 1.2.4 | Vasodilation ✓   |                    |      |
|     | 1.2.5 | Concave ✓  |                    |      |
|     | 1.2.6 | Mammary ✓  |                    |      |
|     | 1.2.7 | Retina ✓   |                    |      |
|     | 1.2.8 | Hypothalamus ✓   |                    |      |
|     | 1.2.9 | Synapse ✓/ synaptic cleft  | (9 x 1)            | (9)  |
| 1.3 | 1.3.1 | A kuphela ✓✓   |                    |      |
|     | 1.3.2 | Akukho nanye ✓✓  |                    |      |
|     | 1.3.3 | Zombini A no B ✓✓  |                    |      |
|     | 1.3.4 | A kuphela ✓✓   | (4 x 2)            | (8)  |
|     | 1.4.1 | (a) D ✓ – cerebellum ✓   |                    | (2)  |
|     |       | (b) A ✓ – cerebrum ✓   |                    | (2)  |
|     |       | (c) B ✓ – medulla Oblongata ✓  |                    | (2)  |
|     | 1.4.2 | - Vertebrae ✓<br>Ezithintela imechanical injury ✓  |                    |      |
|     |       | - Cerebral spinal fluid ✓<br>Yenza ukuba i-spinal cord sibesendaweni entofontofo ✓/<br>Singakhuhleki     |                    |      |
|     |       | - Meninges ✓<br>iimembrane ezigcina ispinal cord sisendaweni yaso ✓/ezikhupha<br>icerebral spinal fluid. |                    |      |
|     |       | <b>(Makisha ezokuqala eziMBINI kuphela)</b>  | (Naziphi ezi2 x 2) | (4)  |

## 1.5 Idayagram yesensory neuron

**Umgaqo wokumakisha:**

- ✓ (T) isihloko esifanelekileyo
- ✓✓✓ (L) iileyibheli (naziphi ezi3)
- ✓ (D) umzobo owamkelekileyo (wesensory neuron) (5)

**EWONKE AMANQAKU A: 50**

## ICANDELO B

## UMBUZO 2

2.1 2.1.1  $\frac{10}{100} \checkmark \times 84\,000 \checkmark = 8\,400$  yabantwana  $\checkmark$  (3)

2.1.2 (a) - Ingxowa yeplastic ethick  $\checkmark$   
 Evalela (ekhusela) intshontsho elidevelophayo de lizalwe  $\checkmark$   
**(Makisha eyokuqala ibeNYE kuphela)** (2)

(b) - loxygenator  $\checkmark$   
 Evumela igaseous exchange  $\checkmark$

## OKANYE

- I-intravenous bag  $\checkmark$   
 Inikezela ngekhamzimba  $\checkmark$   
**(Makisha eyokuqala ibeNYE kuphela)** (Nayiphi e1 x 2) (2)

2.1.3 - Intshontsho elidevelophayo (amalungu) liyakwazi ukuqhubeka  
 - lidevelopha  $\checkmark$  /amalungu omzimba afumana ixesha elaneleyo  
 - Ukudevelopha okuqhelekileyo  $\checkmark$  / ukudevelopha ngokupheleleyo/  
 ukudevelopha okugqibeleleyo  
 - Iiscientist ziyakwazi ukubona xa ixesha lokumitha liphelile  $\checkmark$  / xa  
 ilixesha lokuzala (3)

2.1.4 - Ifoetus yomntu ingalahleka lula / itshabalale  $\checkmark$   
 - Kufuneka imvume kwibhodi eyongameleyo  $\checkmark$  / ebazalini  
 - Abazali azaziidonor mabafumane ulwazi olwaneleyo ngobungozi  $\checkmark$   
 - Ichasene nenkolo.  $\checkmark$   
**(Makisha ezokuqala eziMBINI kuphela)** (Naziphi ezi2 x 1) (2)

2.2 2.2.1 I-internal  $\checkmark$  fertilisation (1)

2.2.2 Inkunzi ithululela isemen emzimbeni wethokazi  $\checkmark$  (1)

2.2.3 Vivipary  $\checkmark$  (1)

2.2.4 - Itakane lekangaroo lidevelopha kwisingxobo sikamama ixesha  
 elongezelelweyo  $\checkmark$  / de kuphele iintsuku ezinga235  
 - Inika ukhuseleko olwaneleyo  $\checkmark$  kwimicelimingeni ye-  
 environment (yamkela nawuphi umzekelo womcelimngeni)

## OKANYE

- Itakane lekangaroo liyancanca kwingono kamama  $\checkmark$   
 - Lifumane izakhamzimba  $\checkmark$   
**(Makisha eyokuqala eNYE kuphela)** (Nayiphi e1 x 2) (2)

2.2.5 Itakane lekangaroo ...  
 - aliboni  $\checkmark$   
 - lize  $\checkmark$   
 - Iixhomekeke emzalini ngokutya  $\checkmark$  (Naziphi ezi2 x 1) (2)

- 2.3 2.3.1 (a) I vitreous humour ✓\* / ichamber  
 - inezakhamzimba zeinner eye ✓  
 - Igcina ishape ye-eyeball ✓  
 - Itransparent ukulungiselela ukuba ukukhanya kuye kwiretina ✓  
 (✓\* enyanzelekileyo + ✓ umsebenzi) (2)
- (b) Icornea ✓\*  
 - igoba imitha yelanga ✓  
 - ikhusela ✓ imehlo  
 - ivumela ukukhanya ukuba kungene kwimehlo. ✓  
 (✓\* enyanzelekileyo + ✓ umsebenzi) (2)
- 2.3.2 - Ukukhanya okungena kwimehlo akusayi kuredyuleyithwa ngokufanelekileyo ✓ /khontrolwa  
 - Ukukhanya okugqithisileyo / okuncinci kungangena kwimehlo ✓  
 - I-image ezingacacanga zingawa kwiretina ✓ /yenze angaboni kakuhle (3)
- 2.3.3 - I ciliary muscle ziycontracta ✓  
 - I suspensory ligament slacken ✓  
 - I tension kwilens iyehla ✓  
 - I lens ibaconvex ngakumbi ✓ / iyabulga  
 - I refractive power yelens iyanyuka ✓ / imitha yelanga igotywa ngakumbi  
 (i-image ecacileyo iya kwiretina) (5)
- 2.4 2.4.1 (a) D ✓ – oval window ✓ (2)
- (b) B ✓ – cochlea ✓ (2)
- 2.4.2 - ukutshintsha kwespeed/ idirection yentloko ✓  
 - kustimuleyitha iicristae ✓  
 - Istimulus sijikwa sibeyi-impulse ✓  
 - I-impulse iya kwicerebellum ✓  
 - Ihamba ngeauditory nerve ✓  
 - Icerebellum ithumela ii-impulse kwivoluntary / skeletal muscle ✓  
 ukugcina ibalance (Any 4 x 1) (4)
- 2.4.3 - Isitrakhitsha eside esisongeneyo ✓  
 Ukwandisa umhlaba wokudetecta iipressure vibration ze-endolymph ✓  
 / ukwandisa ubunako bokudetecta ilow frequency sound

**OKANYE**

- Ubukho beemechanoreceptor / iorgan of Corti ✓  
 butshintsha iipressure vibration zibeyinerve impulse ✓

**OKANYE**

- Inefluid ✓ / i perilymph ne-endolymph  
 eyimedium ekuphuma kuyo iipressure vibration ziphinde zihambe kuyo ✓

(Nayiphi e1 x 2) (2)



- 2.5 2.5.1 Geotropism ✓ (1)
- 2.5.2 Ngenxa yeclinostat ejikelezayo  
 - igravity iyakulingana kuwo onke amacala ✓ / ayizubanagalelo  
 - liauxin zikho ngokulinganayo ✓ kwitip yengcambu  
 - Yenze icell elongation ngokulinganayo ✓ /ukukhula  
 - Lo nto yenza ingcambu ikhule horizontally ✓ / ingagobi  
 (Naziphi e3 x 1) (3)
- 2.5.3 - lauxin iya kwicala elimnyama/elisemthunzini ✓ lestem  
 - liauxin ezininzi zikhulisa ngakumbi ✓  
 - Ikhokelele ekukhuleni ngakumbi ✓ kweli cala  
 - Istem sigobele elangenil ✓ (Naziphi e3 x 1) (3)
- 2.5.4 - Mechanical ✓ /ameva  
 - Chemical ✓ (2)
- [50]**

**UMBUZO 3**

- 3.1 3.1.1 - Iimpuku ezingama20 zabekwa kwiqela ngalinye ✓  
Ukuqinisekisa ukuba isampling size inkulu ✓

**OKANYE**

- Itesting yenziwa amatyeli ama3 kwiintsuku ezingama90 ✓  
Lilonke iexperiment yaphindwa ✓

**OKANYE**

- Imilinganiselo yegazi yathathwa ngokungenamkhethe ✓  
Ukuze kufunyanwe iavareji ✓

**(Makisha eyokuqala eNYE )** (Nayiphi e1 x 2) (2)

- 3.1.2 - Ngokusebenzisa iimpuku ezifike ebudaleni obulinganayo bokuzala ✓  
- Ngokunika iimpuku amanzi alinganayo ✓  
**(Makisha eyokuqala eNYE)** (Nayiphi e1 x 1) (1)

- 3.1.3 - Amaqondo etestosterone ✓ / umlinganiselo wetestosterone (1)

- 3.1.4 - Yicontrol / iyasivumela ukuba sifanise iziphumo ✓  
- Ukubonisa ukuba itestosterone yehla ✓  
- ngenxa yeemicroplastic ✓  
- hayi ngenxa yamanzi ✓ (Naziphi ezi3 x 1) (3)

- 3.1.5 Ngokuya zisanda iimicroplastic emzimbeni weorganism (weempuku), ifertility rate ziyehla ✓✓

**OKANYE**

Xa zincinci iimicroplastic emzimbeni weorganism (wempuku) iyakubaphezulu ifertility rate ✓✓ (2)

- 3.1.6 - Phantsi kweempembelelo zetestosterone ✓  
- iidiploid cell kwiiseminiferous tubule ✓ zetestes  
- zenza imeiosis ✓  
- ukukhupha iihaploid sperm cell ✓ (4)

- 3.1.7 - Amaqondo aphantsi etestosterone ✓ akhokelela  
- kwispermatogenes esiphantsi ✓/zibalwa iisperm ezenziwayo /ezimatshorishayo (2)

- 3.2 3.2.1 (a) Adrenal gland ✓ (1)

- (b) Pancreas ✓ (1)

- 3.2.2 Ukugcina amaqondo ethyroxin ✓ amkelekile ✓ emzimbeni (2)

- 3.2.3 Exocrine  
- Ngenxa yesecretion ✓/pancreatic juice  
- engena kwiduct ✓  
Endocrine  
- Ikhupha ihormone ✓/iglucagon/i-insulin  
- ingene ngqo egazini ✓ (4)

- 3.2.4 - Idlala uC lisecreta ihormone iadrenalin ✓  
 - enyusa ukutshintshwa kweglycogen ibeyigluucose ✓  
 - anyuke amaqondo eglucose egazini ✓  
 - inyuke ibreathing rate ✓  
 - ibeninzi ioxygen engena egazini ✓  
 - iyanyuka iheart rate ✓  
 - ivuleke imithambo yegazi eliya kwiiskeletal muscle ✓  
 - libelininzi igazi elifika kwiskeletal muscle ✓ (Naziphi ezi5 x 1) (5)
- 3.2.5 (a) Pituitary gland ✓ / hypophysis / indawo uA (1)  
 (b) Acromegaly ✓ (1)
- 3.3.1 (a) Ovary ✓ / graafian follicle / iifollicle ezidevelophayo (1)  
 (b) Corpus luteum ✓ (1)
- 3.3.2 - Ngosuku lwe14 ✓ (1)
- 3.3.3 - Amaqondo eLH anyuka ngokukhawuleza ✓ / abaphezulu (1)
- 3.3.4 - I-implantation / ifertilisation iyenzeka ✓  
 - Icorpus luteum ayipheli ✓ / iyaqhubeka ikhupha iprogesterone (2)
- 3.3.5 - Amaqondo aphezulu eprogesterone ✓  
 - Athintela ipituitary gland ✓  
 - ekusecretheni iFSH ✓  
 - kungabikho zifollicle zidevelophayo ✓ (4)
- 3.4 3.4.1 - Ichemoreceptor ezikwicarotid artery zistimuleyithwa ✓ yipH ephantsi  
 - I-impulse ithunyelwa kwimedulla oblongata ✓ / imedulla oblongata iyastimuleyithwa  
 - Imedulla oblongata istimuleyitha intliziyo ✓  
 - Ukuze ibethe ngamandla ✓ nto leyo yenza  
 - icarbon dioxide eninzi ingene emaphaphini ✓  
 - iibreathing muscle ✓ / ii-intercostal muscle nediaphragm  
 - zicontracta actively ngakumbi ✓ ne  
 - rate/depth yokuphefumla iyanyuka ✓  
 - ibeninzi icarbon dioxide ephefumlelwa ngaphandle ✓  
 - Amaqondo ecarbon dioxide egazini ehle ✓ / abuyele kwisiqhelo.  
 (Naziphi ezisi7 x 1) (7)
- 3.4.2 - Imbaleki iyakubanehyperthermia ✓  
 - liprotein/iienzyme zinokudenature ✓  
 - Angangabikho zingqondweni ✓  
 - Nto leyo inokumonzakalisa okokoko ✓ / afe (Naziphi ezi3 x 1) (3)

**[50]**

**EWONKE AMANQAKU ECANDELO B: 50**  
**EWONKE AMANQAKU: 150**