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**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2021

**LIFE SCIENCES P1
ISIKHOKELO SOKUMAKISHA**

AMANQAKU: 150

Esi sikhokelo sokumakisha sinamaphepha ayi 11.

IMIGOMO YOKUMAKISHA I LIFE SCIENCES

1. **Xa kunikwe iimpendulo ezingaphezu kwamanqaku anikiweyo**
Yeka ukumakisha wakufumana amanqaku alindelekileyo ubonise ngomgca ogoso ubhale igama 'aphelele' kwisiphelo sephepha esingasekunene.
2. **Xa, umzekelo, kulindeleke izizathu ezithathu ze kunikwe ezihlanu**
Makisha ezokuqala ezintathu nokuba azamkelekanga.
3. **Xa kunikwe inkqubo yonke ndaweni yesiqingatha sayo**
Yifunde yonke ze ukredithe iindawo ezamkelekileyo.
4. **Xa kubuzwe ufaniso, kodwa kunikwe inkcazelo**
Yamkele ukuba umahluko / ukufana kucacisiwe.
5. **Xa kufuneka itheybhile, kodwa kunikwe umhlathi**
Abafundi baya kuphulukana namankqaku ngokungazobi itheybhile.
6. **Ukuba iidayagram ezihamba neziqwengana zentetho zinikwe endaweni yenkcaza**
Abafundi baya kuphulukana namanqaku.
7. **Ukuba iiflowu tshati zinikwe endaweni yenkcaza**
Abafundi baya kuphulukana namanqaku.
8. **Ukuba ulandelelwano olufanelekileyo alukho nonxulumano alunangqiqo**
Kuloo ndawo lubonakala lukhona, kreditha. Apho lungekhoyo ngokuya uqhubeka, ungakredithi. Xa luphinde lwakhona, kreditha.
9. **Iibriveyshin ezingamkelekanga**
Yamkele ukuba iqalwe yachazwa kwimpendulo. Ukuba ayichazwanga, ungayikredithi iibriveyshin engamkelekanga, kodwa impendulo eyenye yikredithe.
10. **Ukunambarisha okungamkelekanga**
Ukuba impendulo isendaweni elindelekileyo ngokolandelelwano, kodwa ukunambarisha kuphazanyiwe, yamkelekile.
11. **Xa ulwimi olusetyenzisiweyo lunika intsingiselo eyenye**
Ungayamkeli.
12. **Upelo oluneempazamo**
Ukuba lunengqiqo, lwamkele kodwa lungabi nanto yimbi luyithethayo kwiLife Sciences okanye luphume ecaleni.
13. **Xa amagama esiqhelo anikwe kwiteminoloji**
Wamkele xa unashinal ewamkele esakuhlalutya isikhokelo sokumakisha.
14. **Xa kubuzwe unobumba ze kunikwe igama (nevays vesa)**
Ungakredithi.

15. **Xa iiyunit zinganikwanga ezintweni ezimetiweyo**
Abafundi baya kuphulukana namnqaku. Isikhokelo sokumakisha siyakubanamanqaku eeyunits qha
16. **Uyilumkele intsingiselo eyamkelekileyo yempendulo, enokubhalwa ngendlela enomahluko.**
17. **Isihloko**
Yonke imizobo (dayagram, graf, theybhile, njalo njalo) mazibenesihloko.
18. **Ukusebenzisa iilwimi ezahlukeneyo ezamkelekileyo (izigaba zentetho)**
Igama elinye okanye amabini avela ngolunye ulwimi ingeyilulo olo kubuzwe ngalo, wakredithe ukuba afanelekile. Makucelwe imaka elwaziyo ulwimi olusetyenziswe ngumfundi imakishe. Le nto izichaphazela zonke iilwimi ezamkelekileyo.

ICANDELO A

UMBUZO 1

- | | | | | |
|-----|--------|--|---------------------|------|
| 1.1 | 1.1.1 | D ✓✓ | | |
| | 1.1.2 | A ✓✓ | | |
| | 1.1.3 | B ✓✓ | | |
| | 1.1.4 | A ✓✓ | | |
| | 1.1.5 | A ✓✓ | | |
| | 1.1.6 | C ✓✓ | | |
| | 1.1.7 | C ✓✓ | | |
| | 1.1.8 | A ✓✓ | | |
| | 1.1.9 | C ✓✓ | | |
| | 1.1.10 | A ✓✓ | (10 x 2) | (20) |
| 1.2 | 1.2.1 | Meninjisi ✓ | | |
| | 1.2.2 | Periferal ✓ nevas sistim | | |
| | 1.2.3 | Dendrayt ✓ | | |
| | 1.2.4 | Jiyotropism ✓ | | |
| | 1.2.5 | Rawund windo ✓ | | |
| | 1.2.6 | Thayiroksin ✓ / adrenalini | | |
| | 1.2.7 | Adrenal glend ✓ | | |
| | 1.2.8 | Vajayna ✓ | (8 x 1) | (8) |
| 1.3 | 1.3.1 | B only ✓✓ | | |
| | 1.3.2 | Zombi A no B ✓✓ | | |
| | 1.3.3 | B qha ✓✓ | (3 x 2) | (6) |
| 1.4 | 1.4.1 | D → C → A ✓✓ | | (2) |
| | 1.4.2 | Ukukhusela ✓ / ukunciphisa ingozi emzimbeni. | | (1) |
| | 1.4.3 | - Isihlunu ✓
- Iglend ✓ | (Nayiphi eyi 1 x 1) | (1) |
| | | (Makisha eyokuqala ibeNYE qha) | | |
| | 1.4.4 | (a) C ✓ – Intanyuron ✓ / konekta nyuron | | (2) |
| | | (b) B ✓ – Ventral rhuti ✓ | | (2) |
| | | (c) A ✓ – Moto nyuron ✓ | | (2) |

- | | | | | |
|-----|-------|-----|-------------------------------------|-----|
| 1.5 | 1.5.1 | (a) | Thyroid gland ✓ | (1) |
| | | (b) | Testis ✓ | (1) |
| | 1.5.2 | (a) | Pituitary ✓ gland / Hypophysis | (1) |
| | | (b) | TSH ✓ / Thyroid stimulating hormone | (1) |
| | | (c) | Adrenal gland ✓ | (1) |
| | 1.5.3 | A | ✓ | (1) |

EWONKE AMANQAKU ECANDELO A: 50

ICANDELO B

UMBUZO 2

- 2.1 2.1.1 Extenal ✓ fertilizeyshin (1)
- 2.1.2 -Amaqanda ayafetilayzwa kwistraktsha ✓ esingaphandle samadoda (brud pawush) / amaqanda akafetilayzwa ngaphakathi kwisini sokuzala sezingabafazi. (1)
- 2.1.3 - Amaqanda amaninzi agalelwa ✓ kwisingxobo (pouch) ukwandisa amathuba efertilizeyshin ✓
 - Ifertilizeyshi yenzeka ngaphakathi esingxotyeni ✓ ukwandisa amathuba efertilizeyshin ✓
 - Ukudevelopha kweelava/amantshontsho kwenzeka esingxotyeni ✓ ngako oko zikhuselekile kwiiprideyta ✓ / nakwiimo zezulu (Naziphi eziyi 2 x 2) (4)
- 2.1.4 - Ukudevelopha kwamantshontsho kwenzeka kwisingxobo sezingamadoda ✓
 kanti kwivivipari kwenzeka ngaphakathi esibekekweni ✓
 - Amantshontsho afumana ukutya kwiyok yeqanda ✓ kwiiseahorse Kwivivipari amantshontsho afumana ukutya emgcantsini (placenta) ✓
 - Amanzi afumaneka esingxotyeniancedisa kwiexkrishin negesiyas extsheynji ✓
 Kwivivipari umgcantsi wenza iexkrishin negesiyas extsheynji ✓
(Inqaku lokuqala libeliNYE qha) (Naziphi eliyi 1 x 2) (2)
- 2.2 2.2.1 Ixesha lokudevelopha kwentshontsho ✓✓ / fitus phakathi kokumitha nokuzala. (2)
- 2.2.2 Iintsuku eziyi22 ✓ (1)
- 2.2.3 Umlinganiselo weprojesteron ✓ (1)
- 2.2.4 Makufane:
 - Ispisis seempuku ✓
 Ikonsentayshin yeprojecteron ekutofwe ngayo ✓
 - Udidi /ibrand yeprojecteron ✓
 - Inqanaba lokuxakeka kweempuku ✓
 - limeko zempilo zeempuku ✓
 - Udidi lokutya ✓ (Naziphi eziyi 2 x 1) (2)
(Makisha awokuqala AMABINI qha)
- 2.2.5 - Iovari ikhupha iprojecteron ✓ ngako oko,
 - Ukususwa kweovari kunika umphandi ithuba lokuba akwazi ukutofa ngemilinganiselo eyahlukeneyo yeprojecteron ✓
 - ukufanisa igalelo layo ekumitheni ✓ (3)

- 2.2.6 - Inani leempuku ezimithe zagqiba lahlulahlulwe ngenani leempuku kwiqela ngalinye ✓
 - Iziphumumo zaphindaphindwa ngo100 ✓ (2)
- 2.2.7 - Isebenza njenge kontrol ✓
 - ukuze ikwazi ukufaniswa ✓ namanye amaqela
 - ukuqonda ukuba iprojesteron inegalelo na ekumitheni ngokupheleleyo ✓ (Naziphi eziyi 2 x 1) (2)
- 2.3 2.3.1 (a) **A** – Suspensori ligament ✓ (1)
 (b) **B** – Ayris ✓ (1)
- 2.3.2 Ikhuselela imehlo ✓ (1)
- 2.3.3 - Iciliyari mascle iyoluleka ✓
 - lisaspensori ligament zitsaleke ✓
 - Itenshin kwilens yonyuke ✓
 - Ilens ibeflet ✓ / ibeconvex kancinci
 - Amandla okureflekta elens ayehla ✓ / imitha yelanga igotywa kancinci
 - imitha yelanga ibetha kwiretina ✓
 - Kuphume umfanekiso ocacileyo (Naziphi eziyi 4 x 1) (4)
- 2.3.4 - Akusayi kubakho impuls ihambayo ✓
 - isiya kwicerebrum ✓
 - ikhokelele ekuphulukaneni nokubona ✓ (3)
- 2.4 2.4.1 Yindlela yokugcina imeko yangaphakathi ingatshintshi ✓✓ (2)
- 2.4.2 - Iirisepta (zengqele) / themorisepta eziseluswini ziyachukumiseka ✓
 - ukukhupha iimpals eya kwihypothalamus ✓
 - ihypothalamus ithumela impals
 - emithanjeni yegazi eziseluswini
 - nakwiigland zombilo ✓
 - Imithambo yegazi yolusu iyakonstriktika ✓ (vasokonstriktishin)
 - Libalincinci igazi eliya eluswini ✓
 - Ukuze bubebuncinci ubushushu ✓ obuphuma emzimbeni
 - Libalincinci kwakhona igazi eliya kwiigland zombilo
 - Ubencinci ubilo oproduswayo ✓
 - Ukuze bubebuncinc ubushushu obuphuma ngeevaporeyshin ✓ yombilo
 - Ubushushu bangaphakathi bomzimba buyanyuka bugcinwe (Naziphi eziyi 7 x 1) (7)
- 2.4.3 - Ienzaym azisebenzi ✓
 - nto leyo yenza ziyeke iimetabolik prowuses ✓ / zihle
 - ikhokelele ekuyekeni kwamalungu omzimba ✓ / kungabikho respireyshin / kungaphumi eneji (3)

- 2.5 2.5.1. Prosteyt gland ✓ (1)
- 2.5.2 Ihambisa isimen nomchamo ✓ (1)
- 2.5.3 - Iitestis zifuna 2 °C yobushushu obungaphantsi kobo bomzimba ✓
- Ukuprodyusa isperms eziqhelekileyo neziphilileyo ✓
- Ngako oko, ngeemini ezishushu, iskrotam siyoluleka ukulungiselela ukuba iitestis zibekude nomzimba ✓
- ukulungiselela ukuba zingasondeli emzimbeni ✓
- ukugcina ubushushu buphantsi ✓ (Naziphi eziyi 3 x 1) (3)
- 2.5.4 - Inye qha ivas diferens evalwe ngoqhaqho ✓
- Ngako oko, isimen enesperm yaahamba ngelinye icala ✓ / isperms zakwazi ukufika kwiitestis (2)

[50]

QUESTION 3

- 3.1 3.1.1 Oditari nev ✓ (1)
- 3.1.2 Yenza ipresha elinganayo macala omabini etimpanik membreyn ✓ (1)
- 3.1.3 (a) Pina ✓ (1)
- (b) Ogan of koti ✓ / kokliya (1)
- 3.1.4 (a) - liosikle azinako ukuvaybreyta ✓
 - ngako oko, iivaybreyshin azinakugqithela kwioval windo ✓
 - nto leyo ithintela ubukho beepresha weyv kwindlebe engaphakathi ✓/
 - logan of koti ayizuchukumiseka ukuba ikhupke iimpals ✓ / akukho impals izothunyelwa engqondweni ukuze kuviwe (Naziphi eziyi 3 x 1) (3)
- (b) - Indawo uD / timpanik membreyn ayizukwazi ukwenza iivaybreyshin ✓
 - Akukho vaybreyshin ziyakuthunyelwa kwiosikle ✓ / ioval windo
 - Ngako oko, akukho presha weyv ziyakwenziwa kwindlebe engaphakathi ✓
 - logan of Koti ayizuchukumiseka ukuba ikhuphe iimpals ✓ / akukho impals izothunyelwa engqondweni ukuze kuviwe. (Naziphi eziyi 3 x 1) (3)
- 3.1.5 - iikristaye ziyachukumiseka ✓
 - ukuze zitshintshe istimulas sibeyi impals ✓
 - ehamba ngeoditari nev ✓
 - isiya kwicerebelam ✓ apho itolikwa khona
 - icerebelam ithumela iimpals kwiiskeletal maskli ✓ ukubuyisela ibalansi (Naziphi eziyi 4 x 1) (4)
- 3.2 3.2.1 (a) - Ukususa iiockzin ✓ eziprodyuswa kwiapikal bad (1)
- (b) - Tukunika iiockzin thuba lokungena kwiaga blokho ✓ (1)
- 3.2.2 - Iiockzin zizakuya kwicala lasekunene ✓ lestem
 - Iyakubaphezulu ikonsentreyshin yeeockzin kwicala lasekunene ✓ lestem
 - Ikonsentreyshin ephezulu yeeockzin iyakukhokelela sel elongeyshin ✓
 /ukukhula kwicala lasekunene
 - Oku kukhula ngokungalingani ✓
 - kuyakwenza ukuba istem sigobele kwicala lasekhohlo ngokugoba kwencam yestem igobela ngasekhohlo ✓*
***1 Inyanzelekile + Naziphi eziyi 3 (4)**

- 3.2.3 - iiozin ziyakusuka kwicala elikhanyayo ✓ (ekhohlo)
 - ziye kwicala elimnyama ✓ (ekunene)
 - Ikonstreyshin ephezulu yeeozin kwicala elimnyama iyakukhokelela kwisel elongeyshin ✓/ ukukhula okugqithisileyo kunecala elikhanyayo
 - Oku kukhula ngokungalingani ✓
 - Kwenza istem sigobele ekhohlo sisiya kwicala elikhanyayo ✓* (ekhohlo) ***1 Inyanzelekile + Naziphi eziyi 3** (4)
- 3.2.4 - Kuzakudevelopha amasebe asemacaleni amaninzi ✓
 Ukunyusa isivuno ✓
 - Isiqhamo esifumaneka emasebeni siyakwenza kubelula ukuvuna ✓ (Nayiphi eyi 1 x 2) (2)
(Makisha eyokuqala ibeNYE qha)
- 3.3 3.3.1 (a) Insulin ✓ (1)
 (b) Penkriyas ✓ (1)
- 3.3.2 Negative fid-bakh ✓ mekanism / homiyostaysis (1)
- 3.3.3 Ngexesha lokuzila ukutya akutyiwa ngako oko
 - Iqondo leswekile yegazi libangaphantsi kwelifanelekileyo ✓
 - Ipenkriyas ayisakuchukunyiswa ukuba ikhuphe iinsulin ✓/iyakukhupha encinci / iqondo leinsulin liyakwehla. (2)
- 3.3.4 - Xa iqondo leswekile yegazi lihlile langaphantsi kwelo lesiqhelo ✓
 - Ipenkriyas iyachukunyiswa ukukhupha iglukagon ✓ / homon **B**
 - Ekhokelela ekutshintshweni kweglaykojin ibeyiswekile yegazi ✓
 - Nto leyo inyusa iswekile yegazi ✓ ibuyele kweyesiqhelo. (4)
- 3.4.1 (a) Amnoytic fluwid ✓ (1)
 (b) koriyon ✓ (1)
- 3.4.2 Umbilikal veyn ✓ (1)
- 3.4.3 - Idibanisa intshontsho nomama ✓
 - Ivumela ukuhamba kokutya okunyibikileyo okusuka kumama kusiya entshontshweni ✓
 - Ivumela ukuhamba kweoksijin esuka kumama isiya entshontshweni ✓
 - Ivumela ukuhamba kwekabon diyokzayd esuka entshontshweni
 - Isiya kumama ✓
 - Ivumela ukuhamba kwenitrojin esuka ekutshweni isiya kumama ✓
 - Ikhupha iprojesteron ✓ egcina ikhusele umitho
(Makisha ezokuqala eziMBINI qha) (Nayiphi eyi 2 x 1) (2)

- 3.4.4 - Izaygoti idivayida ngemitosis ✓
- Kuphume (eluqilima) ibhola yeesel ✓
- ebizwa ngemorula ✓
- nayo ethi idivayide kuphume ibhola yeesel evulekileyo ✓
- ebizwa ngeblastosist ✓ / blastula
- The blastosist/blastula iyaimplanta kwiendometriyum ✓ / Le ibizwa ngokuba yiimplanteyshin
- Ileya engaphandle yentshontsho ibayikoriyonorion ✓
- Ze ileya engaphakathi ibeyiamniyon ✓
- Eneamnoyitik fluwid ngaphakathi ✓
- Emva kweimplanteyshin ikoriyon idevelopha izinto ezininzi ezingathi yiminwe ✓
- ezibizwa ngekorionik vili ✓
- lendometriyam nekorionikchorionic vili zenza iplasenta ✓
(Naziphi eziyi 8 x 1) (8)
- 3.4.5 - Ikeviti evulekileyo ✓
Ukwamkela intshontsho elikhulayo ✓
- Inezihlunu ✓
ezikwaziyo ukushwabana ziphinde zoluleke ukuze umntwana azalwe ✓
- Siyanwebeka ✓
Sikwazi ukuvuleka ukulungiselels intshontsho elidevelophayo ✓
(Naziphi eziyi 2 x 1) (2)
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EWONKE AMANQAKU ECANDELO B: 100
AMANQAKU EWONKE: 150