Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

IBANGA12

SEPTEMBA 2021

LIFE SCIENCES P2
MARKING GUIDELINE (ISIXHOSA)

AMANQAKU: 150

Esi sikhokelo sokukorekisha sinamaphepha ayi 10.

IMIYALELO YOKUKOREKISHA ILIFE SCIENCES

1. **Ukuba kunikwe ulwazi oluthe kratya kunamanqaku abelweyo**
   Yeka ukumakisha xa amanqaku aphezulu efikelelwe kwaye ubeke umgca we-wavy kunye 'max' kumda wesandla sasekunene.

2. **Ukuba, umzekelo, izizathu ezintathu ziyafuneka kwaye ezintlanu zinikiwe**
   Phawula ezintathu zokuqala nokuba zonke okanye ezinye zichanekile / azichanekanga

3. **Ukuba yonke inkqubo inikwe xa kufuneka kuphela inxenye yayo**
   Funda konke kunye nekhredithi kwinxalenye efanelekileyo.

4. **Ukuba uthelekiso luyabuzwa kodwa iinkcazo zinikiwe**
   Yamkela ukuba umahluko / ukufana kucacile.

5. **Ukuba ukucwangciswa kuyafuneka kodwa imihlathi inikiwe**
   Abaviwa baya kuphulukana namanqaku ngenxa yokungabhali ezincwadini**.**

6. **Ukuba imizobo inikwe nezichazi xa kufuneka inkcazo**
   Abaviwa baya kulahla amanqaku.

7. **Ukuba iflow tshathi inikwe endaweni yeenkcazo**
   Abaviwa baya kulahla amanqaku.

8. **Ukuba ulandelelwano ludidekile kwaye amakhonkco awanangqondo**
   Apho ukulandelelana kunye nokunxibelelana kuchanekile, ikhredithi. Apho ukulandelelana kunye nokunxibelelana kungachanekanga, musa ukutyala. Ukuba ulandelelwano kunye namakhonkco alungile kwakhona, qhubeka kwakhona ngetyala**.**

9. **Izifinyezo ezingaziwayo**
   Yamkela ukuba kuchazwe kuqala kwimpendulo. Ukuba awuchazwanga, musa ukunikela ngetyala kwisifinyezo esingaziwayo kodwa ngetyala impendulo eseleyo ukuba ichanekile.

10. **Inombolo engalunganga**
    Ukuba impendulo ilingana ngokulandelelana kwemibuzo kodwa kunikwe inombolo engeyiyo, kwamkelekile.

11. **Ukuba ulwimi luyayitshintsha intsingiselo ebekiweyo**
    Musa ukwamkela**.**

12. **Iimpazamo zopelo**
    Ukuba iyabonakala, yamkela impendulo, ukuba ayithethi enye into kwiNzululwazi ngezoBomi okanye ukuba ayiphumi kwimeko.

13. **Ukuba amagama aqhelekileyo anikwe kwisigama**
    Yamkela, ukuba yamkelwe kwintlanganiso yeengxoxo yeememo zesizwe.

14. **Ukuba kuphela ileta iceliwe kodwa ligama kuphela elinikiweyo (kwaye kungenjalo)**
Sukuthenga ngetyala.

15. **Ukuba iiyunithi azinikwanga ngokwemilinganiselo**
Abaviwa baya kulahla amanqaku. Isikhokelo sokumakisha siya kwabela amanqaku iiyunithi ngokwahlukeneyo.

16. **Yiba nemvakalelo yempendulo, enokuthi ichazwe ngendlela eyahlukileyo.**

17. **Isihloko**
Yonke imifanekiso (iidayagramu, iigrafu, iitafile, njl. Njl.) Kufuneka ibenegama.

18. **Ukutshintshwa kwekhowudi kwiilwimi ezisemthethweni (imigaqo kunye neengcinga)**
Igama elinye okanye amabini avele (ii) kulo naluphi na ulwimi lwaseburhulumenteni ngaphandle kolwimi lovavanyo lwabafundi olusetyenziswe ubukhulu becala kwiimpendulo zakhe kufuneka enikwe ukuba ichanekile. Ummakishi olwazi kakuhle ulwimi olusemthethweni olufanelekileyo kufuneka athethwe. Oku kusebenza kuzo zonke iilwimi ezisemthethweni.

ICANDELO A

UMBUZO 1

1.1 1.1.1 C ✓✓
1.1.2 D ✓✓
1.1.3 A ✓✓
1.1.4 B ✓✓
1.1.5 D ✓✓
1.1.6 A ✓✓
1.1.7 C ✓✓
1.1.8 B ✓✓
1.1.9 B ✓✓
1.1.10 B ✓✓ (10 x 2) (20)

1.2 1.2.1 Phenotype ✓
1.2.2 Autosomes ✓
1.2.3 Chiasmata ✓/chiasma
1.2.4 Gene ✓
1.2.5 Transcription ✓
1.2.6 Cloning ✓
1.2.7 Homologous ✓chromosomes
1.2.8 Locus ✓ (8)

1.3 1.3.1 B kuphela ✓✓
1.3.2 Bobabini uA no B ✓✓
1.3.3 B kuphela ✓✓ (6)

1.4 1.4.1 Meiosis /Meyosis ✓ (1)

1.4.2 Metaphase 1 ✓ (1)

1.4.3 (a) B ✓ (1)
(b) F ✓ (1)
(c) D ✓ no E ✓
(Korekisha ezimbini zokuqala kuphela) (2)

1.4.4 4 ✓/ four/zine (1)

1.4.5 Sperm ✓ / **(not gamete)** (1)

1.5 1.5.1 Million yeminyaka eyadlulayo ✓ (1)

1.5.2 (a) C ✓/A (1)
(b) A ✓ (1)
(c) B ✓ (1)

1.5.3 Iindidi zeehypothesis ezinxulumene ne-evolution ziye zavavanywa kwaye zaqinisekiswa ngokuhamba kwexesha ✓ / kwenziwe iimvavanyo ezininzi kwaye ixhaswa bubungqina (1)

1.5.4 - Biogeography ✓/Bhayogeography/Bhayojiyography
- Genetics ✓/Jinetics
- Modification by descent ✓/homologous structures (Any 3 x 1) (3)
(Korekisha ezintathu zokuqala kuphela)

AMANQAKU ECANDELO A: 50

UMBUZO 2

2.1 2.1.1 A – Centromere ✓/sentromiye/sentromere (1)

2.1.2 DNA Replication ✓ (1)

2.1.3 -Imolekyuli yeDNA iyazisombulula ✓
-Kwaye ivuleke iziphu ✓ / iiweak hydrogen bonds ziyaqhekeka
-istrand ngasinye sisebenza njengetemplate ✓
-Iinucleotides ezifumaneka zidada kwinucleoplasm ✓
-Zijoyina kwistrand ✓ / (T-A; C-G)
-Ukwenza imicu emibini efanayo yeDNA ✓ (Nayiphi na 4 x 1) (4)

2.1.4 -Velisa iikopi ezimbini zeeseli / zeDNA ✓ / iichromosomes
-Ukuba iseli nganye entsha eyakhiwe kwimitosis inemfuza ngqo
Izinto / inani elifanayo le-DNA njengeseli yomzali ✓ / iichromosomes. (2)

2.2 2.2.1 Set 2 ✓/kwiseti 2 /yesibini (1)

2.2.2 Zonke iibhanti zosana ezingadibani notata 2 zifana nomama 2✓✓

OKANYE

Zonke ii DNA bars zosana zifana nezo zikatata 2 kunye nezika mama 2 ✓✓

OKANYE

Iibars zabanye abazali azihambelani/azifani nazo zonke iibars /amabhanti omntwana ✓✓ (2)

2.2.3 blood ✓/igazi
skin cell ✓/iseli yolusu
hair cell ✓/iseli yonwele
saliva ✓/amathe/izinkcwe
Korekisha ezimbini zokuqala kuphela (Nayiphi 2 x 1) (2)

2.2.4 Ubungqina bebhayoloji kuphando lweforensic ✓ / iindawo zolwaphulo-mthetho / ukuchonga izaphuli mthetho
Ukulandelela abantu abalahlekileyo ✓
ukuchaza abantu abaswelekileyo / izilwanyana ✓
Ukuchaza ukuphazamiseka kwemfuza ✓
Ukufanisa izicubu zomzimba ✓
Ukuseka ubudlelwane bosapho ✓
Korekisha eziMBINI zokuqala kuphela (Nayiphi 2 x 1) (2)

2.3 2.3.1 Iiseli ezibomvu zegazi ezimile okwerhengqe zibangela ukubhloka kwimithambo yegazi ekhokelela ekonakaleni kwamalungu abalulekileyo ✓ / ukuhambisa ioksijini encinci ekhokelela kumandla amancinci / kwianemia (1)

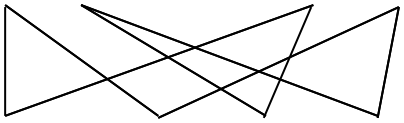
2.3.2 Iseli yesitem iiseli ezingohlukaniswanga ✓ ezinamandla okwenza nayiphi na itissue ✓ okanye ilungu lomzimba. (2)

2.3.3 (a) CUU ✓ (1)

(b) Glycine ✓ (1)

(c) Ukuba u-Thymine utshintshela ku-Adenine
-I-mRNA / ikhowudon iya kuba yi-GUG ✓endaweni ye-GAG
-I-tRNA / anticodon iya kuba yi-CAC ✓ endaweni ye-CUC
-Ngoko ke, i-amino acid iya kuba yiValine ✓
- endaweni yeGlutamine ✓ (4)

2.3.4

P_1	Phenotype	Normal male	x	Normal female ✓
	Genotype	HH ✓	x	Hh ✓
Meyosis				
	G/gametes	H , H	x	H , h ✓
Fertilisation				
F_1	Genotype	HH ; HH ; Hh ; Hh✓		
	Phenotype	All Normal		

Bane **0%** ✓* lokufumana umntwana one sickle cell disease

P_1 ne F_1 ✓
Meiosis ne fertilisation ✓ **Nayiphi 5 + *1** **Compulsory**

OR

P_1	Phenotype	Normal male	x	Normal female✓
	Genotype	HH✓	x	Hh✓
Meiosis				
	G/gametes	H , H	x	H , h✓
Fertilisation **F_1**		Gametes | **H** | **h** **H** | HH | Hh **H** | HH | Hh Correct genotypes ✓		
	Phenotype	All Normal		
Banethuba le-0% ✓ * lokuba nomntwana onesifo seesells ezimile okwerhengqa				
P_1 and F_1 ✓ Meiosis and fertilisation ✓ ***1 Compulsory + Any 5**				

(6)

2.4 2.4.1 Karyogram ✓ / Karyotype (1)

2.4.2 Chromosome pair 23 ✓ unee
X chromosomes ezimbini ✓ / XX/iichromosomes ziyalingana ngobungakanani (2)

2.4.3 - Kuba kukho iseti ephindwe kabini yee-chromosomes ✓ / 46 chromosomes / idiploid / homologous
- kwaye akukho seti inye yeechromosomes ✓ / hayi iichromosomes eziyi23 / hayi ihaploid (2)

2.4.4 Down's Syndrome ✓/ trisomy 21 (1)

2.4.5 - ichromosome pair 21 ✓
-Ayohlukani ✓ / non-disjunction
-Oku kuya kukhokelela ekubeni igamit/gamete nganye ibe neekopi ezimbini zekromosome 21 ✓-Xa le gamete idibana kunye ne normal gamete
-Isiphumo se-zygote siya kuba nekopi eyongezelelweyo ye-chromosome 21 ✓ / 3 iikopi ze-chromosome 21 (Nayiphi 3 x 1) (3)

2.5 2.5.1 Dihybrid ✓ Cross (1)

2.5.2 Zimbini izinto ezahlukileyo ✓ ezicrosiswayo (1)

2.5.3 (a) bbtt ✓✓ (2)

(b) Zombini zimnyana kwaye akukho mabala amhlophe ✓✓
OKANYE
Mzali 1Mnyama kwaye akukho mabala amhlophe ✓
Mzali 2 Mnyama kwaye akukho mabala amhlophe. ✓ (2)

2.5.4 - Kuba uboya obumnyama bulawulwa yi-allele edominent ✓
- ikati ingaba homozygous / BBtt okanye heterozygous ✓ / Bbtt (2)

2.5.5 -Ipair yee-alleles kwii-chromosomes ze-homologous ziyohlukana ✓
- Ngexesha le-meiosis ✓ / anaphase / ukwenzeka kwegamete, ukuze
-I-allele enye kuphela kwisibini ngasinye ibekhona kwi-gamete ✓ / inzala unokufumana iallele enye kumzali ngamnye (3)
[50]

UMBUZO 3

3.1 3.1.1 Igrafu ebonisa inani leecolonies zamabhabhathane e-monarch ukususka kwi-1994 ukuya kwi-2010 ✓ (1)

3.1.2 (a) Ukusetyenziswa kwe herbicide ✓ (1)
(b) Inani le mornach butterfly colonies ✓ (1)

3.1.3 - Inani lamabhabhathane emornach lehlile ukususka ngo1996 ✓
- phambi kokuba kusetyenziswe iherbicides ngo1998 ✓ (2)

3.1.4 - into eneDNA / genome etshintshileyo ✓
- ukuveza uphawu olufunekayo ✓ (2)

3.1.5 -Ukhuphiswano oluncinci phakathi kwesityalo nokhula ✓ / kuyakubakho isivuno esingaphezulu kukhokelela ekwandeni kwinzuzo yamafama ✓ (1)

3.2 3.2.1 Kwakungekho kutya kwaneleyo ukuba batye ✓ (1)

3.2.2 Amasele ahlukaniswa ngamanzi ✓
-Kwaye ke, akubangakho kuzalisana ✓ (2)

3.2.3 - Kwisiqithi kukho umahluko kubungakanani be*Gymnodactylus amarali* ✓ / amacilikishe
- Amanye amacikilishe ebeneentloko ezincinci ngelixa amanye eneentloko ezinkulu ✓
- Xa zazininzi iintubi ezinkulu kwezi ziqithi ✓
- lawo aneentloko ezincinci asweleka ✓ kuba ebenokutya kuphela iintubi ezincinci
- lawo aneentloko ezinkulu asinda ✓ angatya iintubi ezinkulu
- Azala kwakhona kwaye adlulisa uphawu lweentloko ezinkulu kwinzala yawo ✓
- Ekuhambeni kwexesha kwabakho inani elikhulu lamacikilishe aneentloko ezinkulu ✓ (Nayiphi 5 x 1) (5)

3.2.4 -Ukuba ispicies zesiqithi zinokuzaliswa ngeespicies zemainland ✓
-kwaye zivelise inzala echumileyo(fertile)ziluhlobo olunye ✓ / ukuba azivelisi inzala echumileyo, aziyiyo intlobo efanayo (2)

3.3 3.3.1 *Homo sapiens* ✓ (1)

3.3.2 -ukukwazi ukukrazula ✓ / ukuluma / ukuhlafuna
-ukutya okuluhlaza ✓ (2)

3.3.3 Table ✓

Humans	Gorilla
1. Icranium enkulu✓/ingqondo	1. icranium encinci✓/ingqondo
2. Flat face ✓/ Forehead slopes less backwards	2. Face sloping ✓/ Forehead slopes more backwards
3. Brow ridges are less pronounced ✓	3. Brow ridges are more pronounced ✓
4. Less protruding jaws ✓/ prognathous	4. More protruding jaws ✓/ prognathous
5. Lower jaw has a well-developed chin ✓	5. Lower jaw has a poorly developed chin ✓

(Markisha ezokuqala ezintathu kuphela) Table + (Nayiphi 3 x 2) (7)

3.3.4 - Opposable thumbs ✓
- iingalo ezijikeleza ngokukhululekileyo ✓
- Elbow joints allowing rotation of forearm ✓
- jikelezisa isandla ubuncinci 180° ✓
- (Flat) nails instead of claws ✓/bare fingertips
- Five digits/ pentadactyl

(Markisha ezimbini zokuqalakuphela) (Nayiphi 2 x 1) (2)

3.4 3.4.1 - Australopithecus ✓
- Ardipithecus ✓ (2)

3.4.2 4 ✓ mya (1)

3.4.3 (4,5 – 1) = 3,5 ✓✓ mya (2)

3.4.4 - The foramen magnum has moved to the base of the skull ✓/ is in a more forward position so that the head can be held vertically. ✓/ spinal cord can be in line with the brain/ spine to enter the skull vertically
- The position of the pelvic girdle moved to under/the bottom of the core body ✓ so it is suitable to carry the weight of the upper body ✓
- The pelvis has become more cup shaped/wider and shorter ✓ which makes it suitable to carry the core/weight of the upper body ✓/ for better distribution of upper body weight
- The spine became S- shaped ✓ / greater lumbar curvature in spine for better balance✓/to support the upper body weight

Mark first TWO only (Any 2 x 2)

-I-foramen magnum ize kwisiseko (base) solukakayi (skull) ✓ / ikwindawo engaphambili ukuze intloko ibanjwe nkqo. ✓ / umnqonqo unokuthi uhambelane nengqondo / umqolo wokungena kukhakhayi ngokuthe nkqo
-ipelvic ihanjiswe ngaphantsi / emazantsi omzimba ongundoqo ✓ ukuze ithwale ubunzima bomzimba ongaphezulu ✓
- Isinqe siye senziwa ikwekomityi / sibanzi kwaye sasifutshane ✓ esenza ukuba kufaneleke ukuthwala ubunzima bomzimba ongaphezulu /ongasentla ✓ / ukusasazwa ngcono kobunzima bomzimba ongaphezulu/ongasentla
-Umqolo umile njengo S / ilumber curvature enkulu emqolo ukuze kuxhathiseke ngcono ✓ / ukuxhasa ubunzima bomzimba ongasentla
Markisha ezimbini zokuqala kuphela (naziphi 2 x 2) (4)

3.4.5 (a) *Australopithecus africanus* ✓ (1)
(b) Sterkfontein ✓ Caves (1)
(c) Robert Broom ✓/ John T Robinson (1)

3.5 3.5.1 Abantu bale mihla bavela eAfrika - emva koko bafudukela kwamanye amazwekazi ✓ (2)

3.5.2 Fossil evidence ✓
mitochondrial DNA ✓/ mtDNA
Markisha ezimbini zokuqala kuphela (2)

3.5.3 Americas ✓ (1)

3.5.4 (200 000 – 45 000) ✓ years = 155 000 ✓ years (2)
[49]

EWONKE SECTION B: 100
AMANQAKU EWONKE: 150