



Province of the
EASTERN CAPE
EDUCATION



NATIONAL SENIOR CERTIFICATE

KEREITI YA 12

LOETSE 2023

LIFE SCIENCES P1

MATSHWAO: 150

NAKO: Dihora tse 2½

Pampiri ena e na le maqephe a 15.

DITAELO LE DIKELETSO

Bala ditaelo tse latelang ka hloko pele o araba dipotso.

1. Araba potso tsena kaofela.
2. Arabela dipotso TSOHLE BUKENG YA DIKARABO.
3. Qala dikarabo tsa potso KA NNGWE leqepheng LE LETJHA.
4. Nomora dikarabo ka nepo ho ya ka moo dipotso di nomorilweng ka teng pampiring ya dipotso.
5. Araba dipotso ho ya ka ditaelo tsa potso ka nngwe.
6. Etsa diterowing TSOHLE ka pensele o be o di leibole ka pene e bolou kapa e entsho.
7. Teroya didayakeramo, ditheibole kapa diflotjhate ha o kotjwa ho di etsa.
8. Didayakeramo tse pampiring ena ya dipotso HA DI A etswa ho latela ditekanyo.
9. O SE KE wa sebedisa pampiri ya kerafo.
10. O ka sebedisa khalekhuleitha e sa porokeramuwang, protraktara le khampase ha ho hlokeha.
11. Ngola ka mongolo o makgethe, mme o balehang.

KAROLO YA A**POTSO YA 1**

1.1 Ho fanwe ka dikgetho tse fapaneng e le dikarabo tsa dipotso tse latelang. Kgetha karabo e nepahetseng mme o ngole feela tlhaku (A–D) haufi le dinomoro tsa potso (1.1.1. ho ya ho 1.1.9) BUKENG YA DIKARABO, Mohlala 1.1.10 D.

1.1.1 Ke efe e le NNGWE ho ditshwelesa tse latelang tse mmeleng wa motho eo e leng endokraene?

- A Prostate gland
- B Salivary gland
- C Thyroid gland
- D Sweat gland

1.1.2 Ka tlase ke lethathamo la dintho tse etswang ke dihomoune.

- (i) Khonstrikshene ya methapo ya madi e letlalong
- (ii) Ho nyolla tsamaiso ya madi ho ya letlalong
- (iii) Ho potlakisa ho fetoha ha tlelaekhojene ho ya ho glucose
- (iv) Ho fokotsa reiti ya ho hema

Ke efe ho tse latelang e etswang ke adrenalini?

- A (i), (ii) le (iii) feela
- B (ii), (iii) le (iv) feela
- C (iii) feela
- D (i) le (iii) feela

1.1.3 Boemo ba glucose mading a motho bo etswa ke ...

- A thyroxin, glucose le adrenalin.
- B insulin, glucose le adrenalin.
- C insulin, aldosterone le glucose.
- D thyroxin, insulin le aldosterone.

1.1.4 Ke efe karolo ya boko e porosesang divisual imphalse?

- A Sereboramo
- B Serebelamo
- C Medulla oblongata
- D Haepothalamase

1.1.5 Grommet e kenngwa ho thaemphaniki membraine ya tsebe ho etsetsa ho ...

- A dumella dibaktheriya ho tswa sebakeng se nang le tshwaetso.
- B dumella moya ho kena bohareng ba tsebe.
- C kenya marothodi a tsebe ho ya sebakeng sa tshwaetso ka kotloloho.
- D Ho beha leihlo porosesa ya ho fola kamehla.

1.1.6 Ke efe karolo ya leihlo e nang le difothoreseptara?

- A Sclera
- B Khoroid
- C Retina
- D Khonea

1.1.7 Dikhontrasephife di sebediswa ke basadi ba bangata ho thibela pelehi. Diphuputso di ile tsa etswa ho leka ho sheba matla a dikhontrasephife.

Ke sephetho sefe se le SENG ho tse latelang, se ka sebediswang ho etsa qeto ya hore ke efe khontrasephife e matla ka ho fetisisa?

- A Lenane la basadi ba bileng bakgatjhane.
- B Lenane la basadi ba sa kang ba ba bakgatjhane.
- C Makgetlo a ho ya nakong ha basadi.
- D Bongata ba madi a lahlehang lekgetlo ka leng la menstruashene.

1.1.8 Ke efe karolo ya sepemo e ntshang enzaeme e tabolang lera le kantle la lehe?

- A Akrozoumu
- B Maethokhondriya
- C Nyutleliyase
- D Khromathini

1.1.9 Human immuno-deficiency virus (HIV) e fetisetswa ho tloha ho motho ya tshwaeditsweng ho ya ho motho e momg ka lero la mmele.

Ntate ya tshwaeditsweng o ne a entse vasekthomi (eleng porosejara ya ho kgaola mme o tlame vas diferentia) o ntse a tseba ho fetisa HI virus ka nako ya thobalano hobane ...

- A o ntse a tseba ho ejakhuleitha dispemo tse nang le vaerase.
- B a ka ejakhuleitha lero le nang le divaerase ho tswa ho diaccessory gland.
- C masala a moroto ho urethra a na le vaerase.
- D lera la urethra le ntsha vaerase ka nako ya ejakhuleishene

(9 x 2) (18)

1.2 Fana ka lentse le nepahetseng **la baeloji** bakeng sa tlhaloso ka NNGWE ho tse latelang. Ngola feela lentse pela nomoro ya potso (1.2.1–1.2.9) BUKENG YA KARABO.

- 1.2.1 Tjhupu e harehileng kante ho marete e bolokang disepemo ho fihlella di fihletse kgolo.
- 1.2.2 Diphetoho tse etsahalang ho ovari le popelong ya mosadi nakong ya matsatsi a 28.
- 1.2.3 Sebaka seo ho etsahalang fethiliseishene
- 1.2.4 Bolo e bulehileng ya disele moo lehe le fethalaisitsweng le holang teng.
- 1.2.5 Sebopeho se amohelang stimuli ho tloha ho environmente.
- 1.2.6 Mokedikedi o tlatsitseng sebaka se dipakeng tsa khonea le lense.
- 1.2.7 Direseptha tse ho khoklea.
- 1.2.8 Karolo ya boko e laolang boemo ba khabon daeoksaete mading.
- 1.2.9 Sehlopha sa disele tsa endokhraene ho penkhrease tse sekrethang insulini

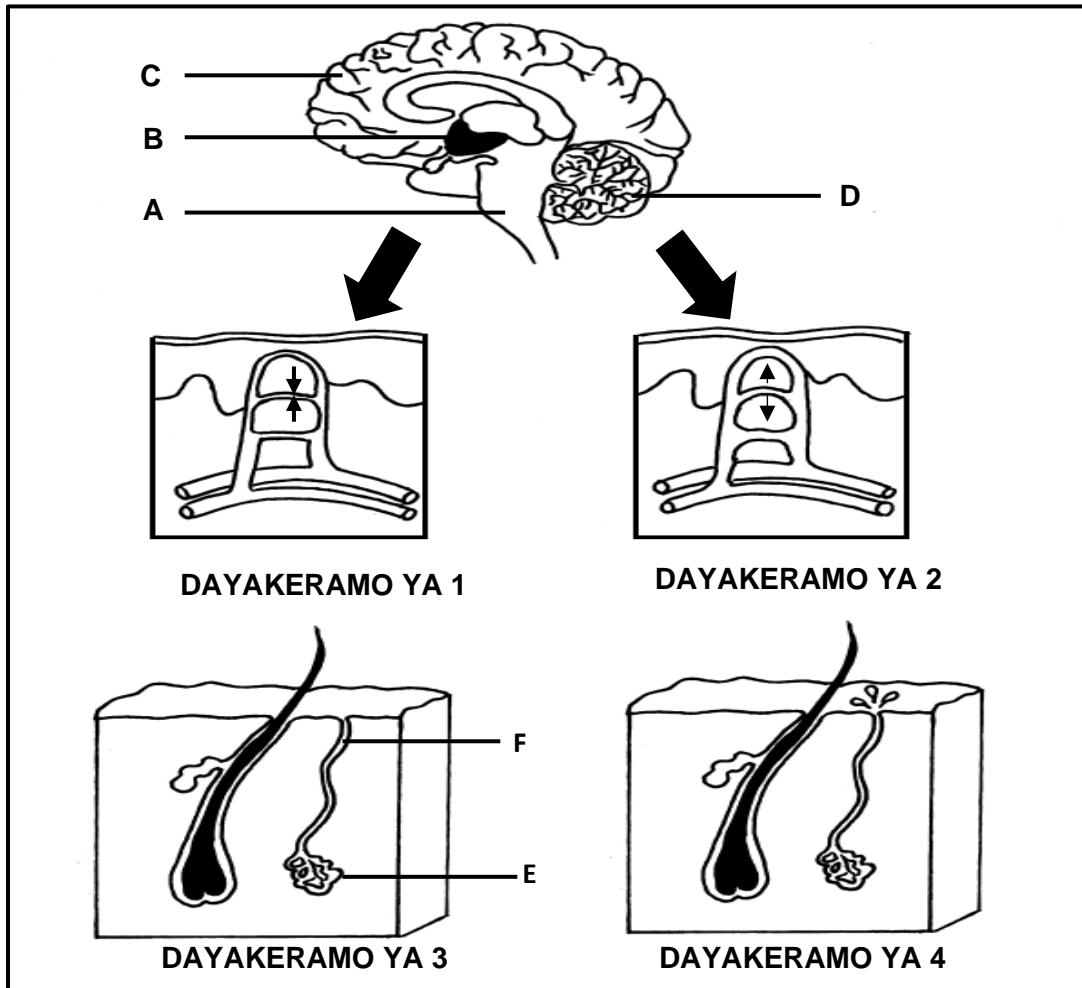
(9 x 1) (9)

1.3 Bontsha hore na dipolelo tse ho KHOLOMO YA I di tsamaelana le tse ho **A FEELA, B FEELA, A le B ka BOBEDI** kapa ha ho le e nngwe ho tse ho KHOLOMO YA II. Ngola **A FEELA, B FEELA, A le B ka BOBEDI, HA E YO**, haufi le nomoro ya potso (1.1.3–1.3.3) BUKENG YA DIKARABO.

KHOLOMO YA I		KHOLOMO YA II	
1.3.1	Homoune ya botona e ntshwang ke marete	A:	TSH
		B:	Thaeroksine
1.3.2	Matshwao a mokgahlelo wa bobedi a bong ho ba batshehadi	A:	Ho hola matswele
		B:	Ho hola maboya
1.3.3	Lera le sireletsang boko le spaenale khodo	A:	Germinal epithelium
		B:	Meninges

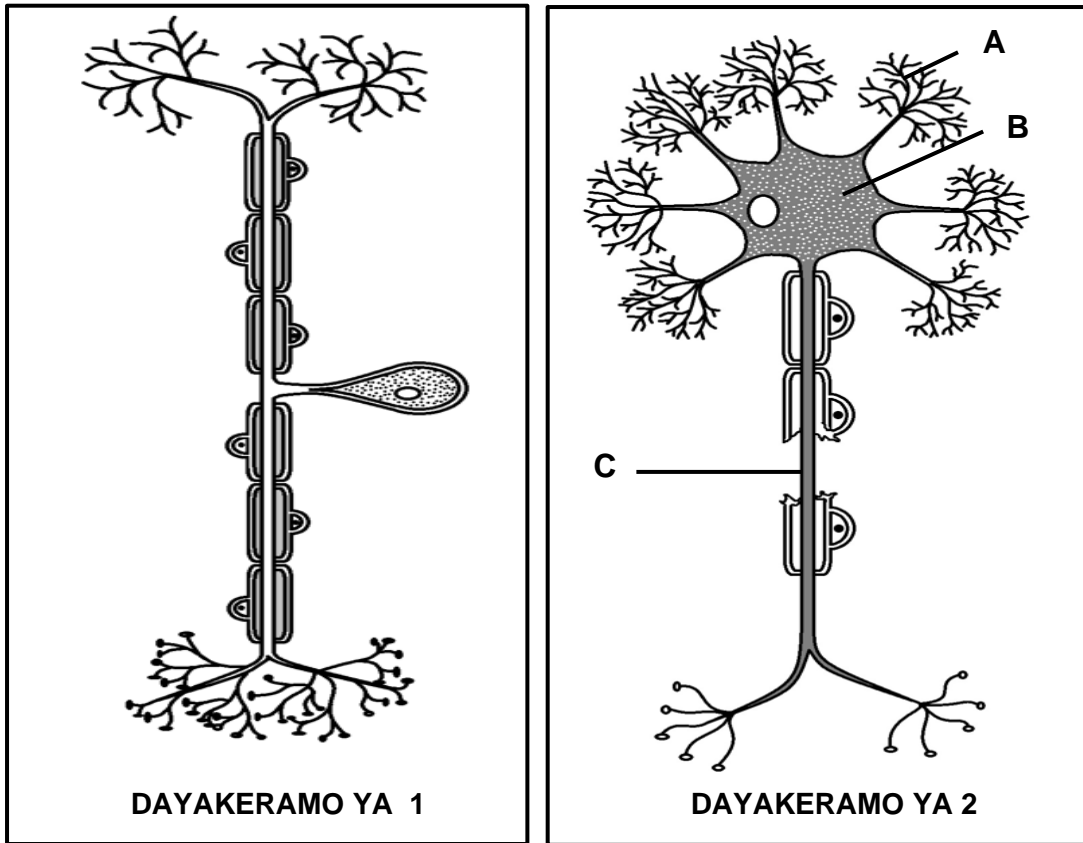
(3 x 2) (6)

1.4 Didayakeramo tsa 1, 2, 3 le 4 tse ka tlase, di bontsha karolo ya porosese ya homeostasisi bathong.



- 1.4.1 Hlwya porosese ya homeostasisi e emetsweng ke dayakeramo e ka hodimo. (1)
- 1.4.2 Bolela porosese e emetsweng ho:
- (a) DAYAKERAMO YA 1 (1)
- (b) DAYAKERAMO YA 2 (1)
- 1.4.3 Fana ka DITHLAKU le LEBITSO la karolo e:
- (a) Laolang porosese ya homeostasisi e bontshitsweng didayakeramong (2)
- (b) E leng mahlahlaha mohla ho batang (2)
- 1.4.4 Bolela bohlokwa ba porosese e etsahalang ho DAYAKERAMO ya 4. (2)

1.5 Didayakeramo tse ka tlase di emetse dinyurone tse pedi tsa nevase sistimo ya motho.



1.5.1 Hlwaya karolo ya **B**. (1)

1.5.2 Bolela (di)karolo tse:

- (a) Amohelang diimpulse le ho di fetisetsa ho karolo ya **B** (1)
- (b) E fetisetsang diimpulse ho tloha ho karolo **B** (1)

1.5.3 Hlwaya nyurone e emetsweng ke DAYAKERAMO YA 1. (1)

1.5.4 Fana ka mofuta wa nyurone e sebetsang jwalo ka lehokela dipakeng tsa dinyurone ho DAYAKERAMO YA 1 le YA 2 ho sentral nevase sistimo. (1)

1.5.5 DAYAKERAMO YA 2 e bontsha bofokodi sebopelong sa nyurone.

Fana ka:

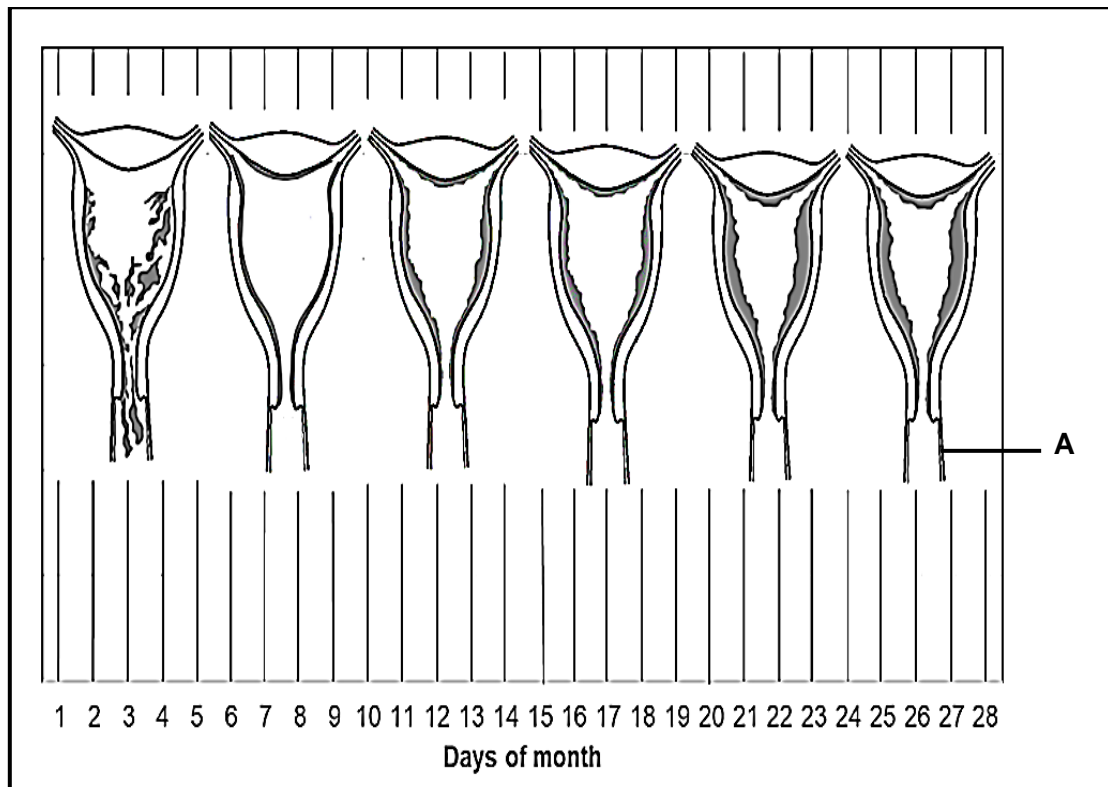
- (a) Bofokodi bo bontshitsweng dayakeramong (1)
- (b) Ditlamorao tsa bofokodi ho tsamaisweng ha impulse (1)
- (c) Bolela pherekano e etswang ke bofokodi bona (1)

MATSHWAO OHLE A KAROLO A: 50

KAROLO YA B

POTSO YA 2

- 2.1 Dayakeramo e ka tlase e emetse mekgahlelo e fapaneng ya ho hola ha lera la popelo ka nako ya menstrual saekele.



- 2.1.1 Hlwaya:

- (a) Karolo ya **A** (1)
- (b) Porosese e etsahalang ka matsatsi a 4 a pele (1)

- 2.1.2 Bolela ovariyene homounu e boemong bo hodimo ho tloha letsatsing la 15–28. (1)

- 2.1.3 Hlalosa ka ho tenyafala ha lera la popelo ho tloha letsatsing la 7–13. (6)

- 2.2 Tse ding dipilisi tsa ho thibela pelehi di na le projesterone e ngata.

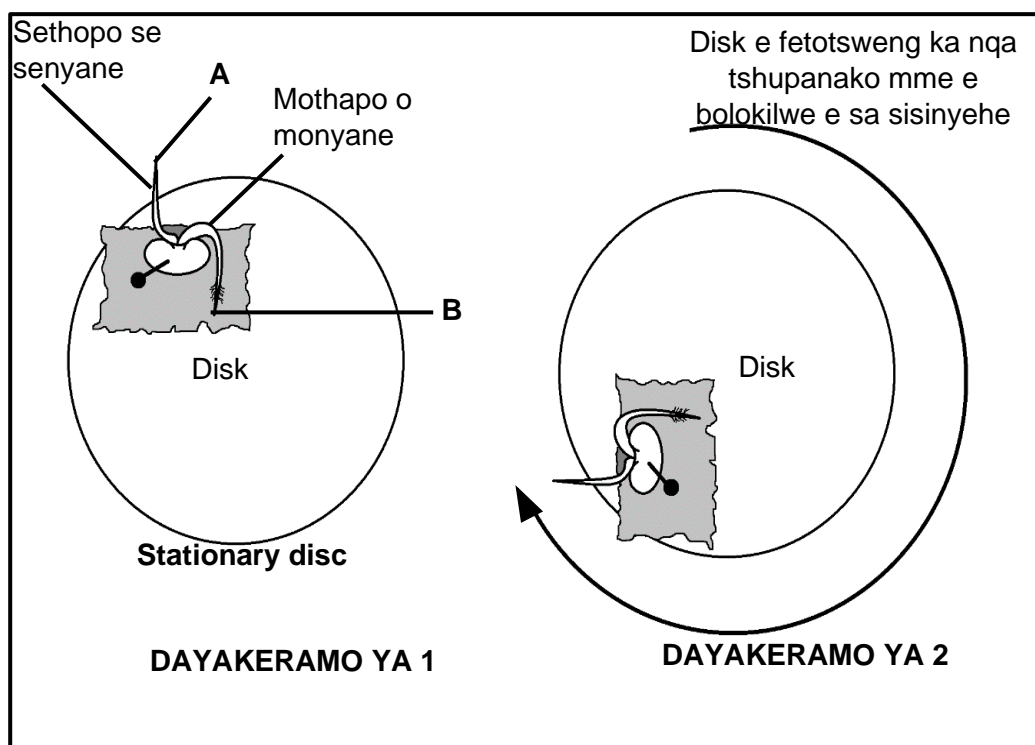
Hlalosa hobaneng ha mosadi ya sebedisang mofuta oo wa dipilisi a ke keng a ima. (4)

- 2.3 Hlalosa *oogenesis*. (5)

2.4 Patlisiso e ile ya etswa ho fumana tshusumetso ya stimulase e kantele ho nqa eo dimela di holelang ho yona.

Mokgwa wa tsamaiso e bile o latelang:

- Sethopo se melang se ile sa hlongwa leseleng le mongobo ho disk ka mokgwa o bontshitsweng ho dayakeramo.
- Disk e ile ya tsepamiswa ka hara ntlo e lefifi.
- Dithopo tse melang di ne di fafatswa ka metsi kamehla.
- Ka morao ho matsatsi a 4, disk e ile ya fetolelwa sebakeng se bontshitsweng ho DAYAKERAMO YA 2. Ya bolokwa e tsepame mme e sa sisinyehe.
- Ka morao ho beke, ditekolo di entswe mme nqa ya kgolo ya seteme se senyane le mothapo e ile ya rekotwa.



2.4.1 Bolela paterone ya kabo ya homoune ya kgolo ho:

(a) **A** (1)

(b) **B** (1)

2.4.2 Hlalosa lebaka le le LENG hobaneng ha disk e ne e bolokilwe ntlong e lefifi. (2)

2.4.3 Teroya dayakeramo e makgethe ho bontsha nqa ya kgolo ya lehlomela le lenyane le mothapo ho DAYAKERAMO YA 2 kamorao ho beke. (3)

2.4.4 Hlalosa nqa ya kgolo ya lehlomela le lenyane kamorao ho ho behwa sebakeng se bontshitsweng ho DAYAKERAMO YA 2. (7)

2.5 Bokalo ba letswai mading bo laolwa ke aldosterone.

2.5.1 Bolela tshwelesa e sekerethang(e ntshang) aldosterone. (1)

2.5.2 Bolela sistimo ya mmele moo tshwelesa ena e leng karolo ya yona. (1)

2.5.3 Motho ya jang dijo tse nang le letswai le lengata.

Hlalosa phetoho ho:

(a) Boemo ba aldosterone mading a motho (3)

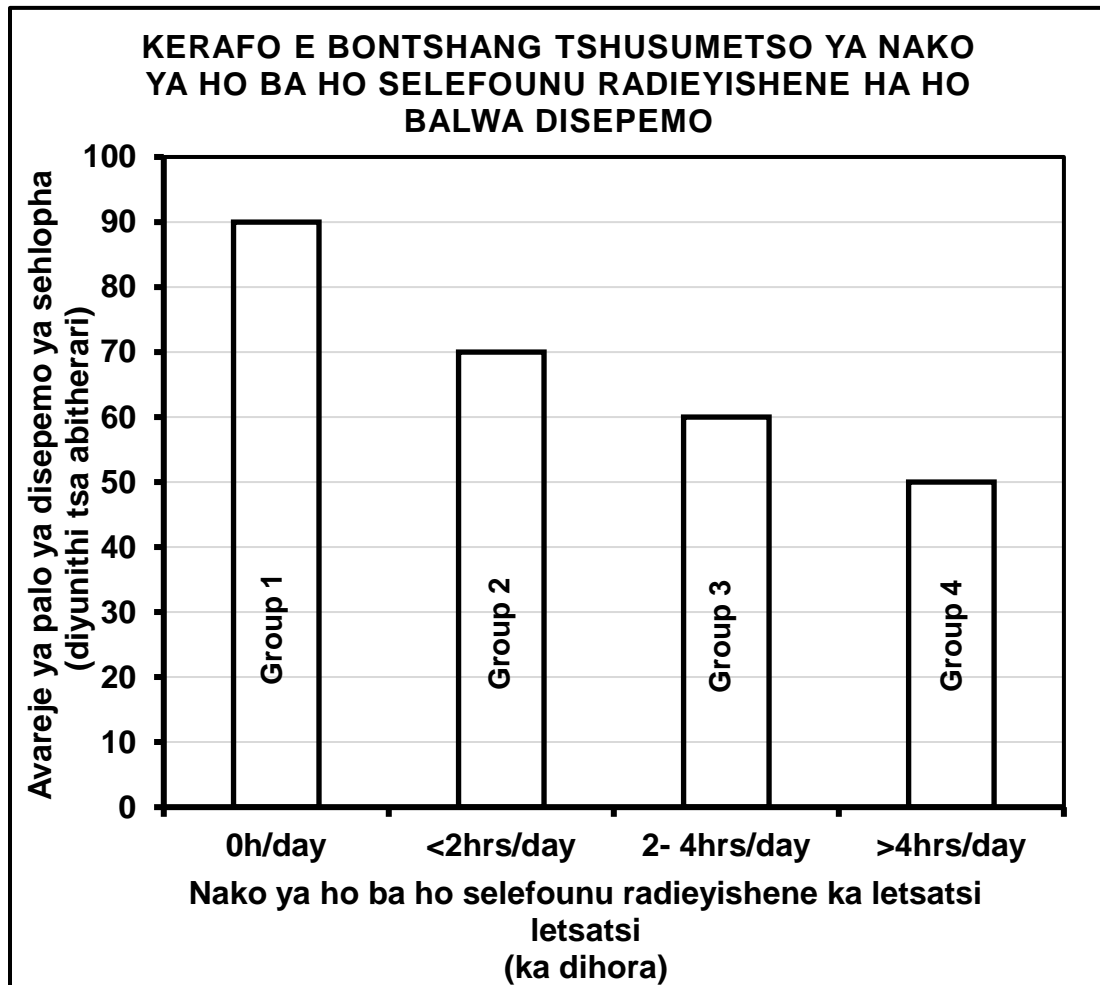
(b) Sobopeho sa moroto (2)

2.6 Patlisiso e ile ya etswa ho fumana matla a nako ya ho ba ho selefounu radieyishene ha ho balwa peo ya botona (disepemo).

Mokgwa wa tsamaiso e bile o latelang:

- Baithaopi ba batona ba 100, ba phetseng hantle, ba sa tsubeng, ba sa nweng jwala ba ile ba kgethwa.
- Bankakarolo ba:
 - Arotswe dihlopha tse 4 tse lekanang ho ya ka nako eo ba sebedisang selefounu ka yona ka letsatsi.
 - fuwe mofuta o tshwanang wa diselefounu ho di sebedisa.
 - laetswe ho tena diaparo tsa ka hare tse sa ba tiiseng, beke pele ho nkwa simene.
- Simene e ile ya nkwa mothong ka mong ho bankakarolo ba sehlopha ka seng.
- Avereje ya palo ya disepemo ya sehlopha ka seng e ile ya fumanwa
- Mokgwatsamaiso o ile wa phetwa dikgwedi tse ding le tse ding tse 2 nakong ya selemo.

Diphetho tsa patlisiso di bontshitswe ho kerafo e ka tlase:



2.6.1 Hlwaya:

(a) variebole e ikemetseng (1)

(b) variebole e itshetlehileng (1)

Difuperweng tsa pampiring ena di se sebediswe ntle ho tumello

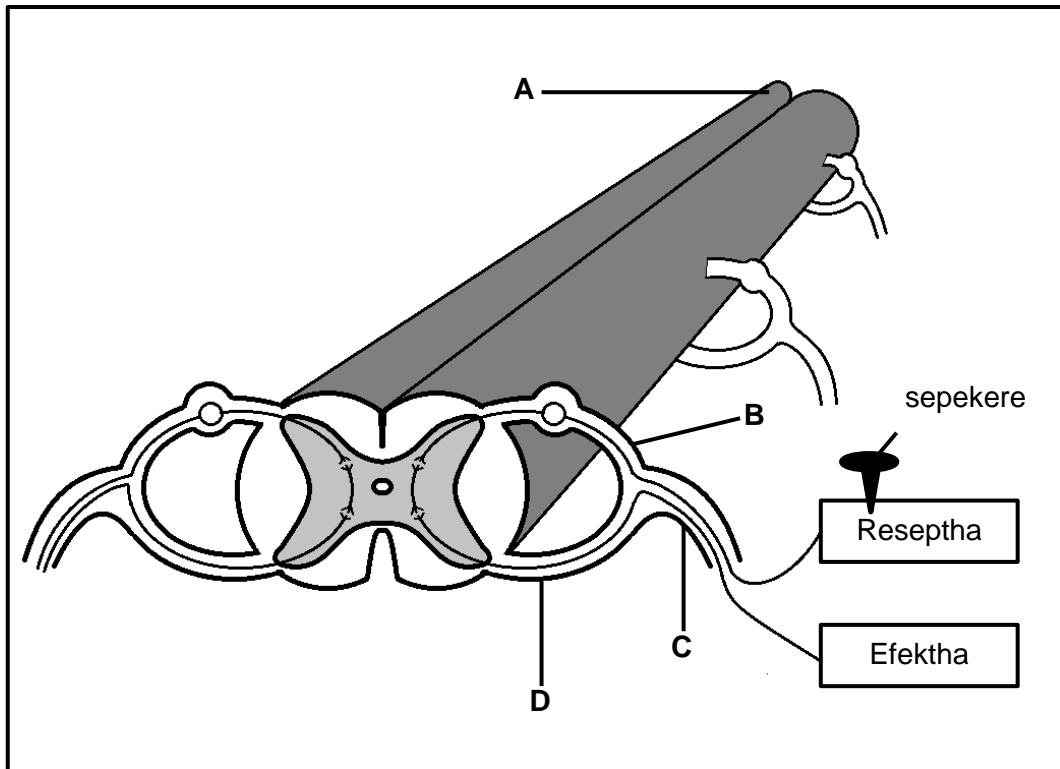
Phetla

- 2.6.2 Ke makgetlo a makae selemong moo ba ileng ba etsa diteko tsa disampole tsa semene ho tswa sehlopheng ka seng sa bankakarolo? (1)
- 2.6.3 Bolela tsela e le NNGWE moo mofuputsi a nnetefaditseng hore phuputso ena e a tshepahala. (1)
- 2.6.4 Bolela divariebole tse THARO tse neng di tshwanela ho bolokwa di sa fetohle ho ntlafatsa bonnete ba patlisiso ena. (3)
- 2.6.5 Sebedisa diphetho ho tswa ho kerafo ho etsa phetho ya phuputso ena. (2)
- 2.6.6 Fana ka lebaka la ho laela bankakarolo bohle ho apara diaparo tsa ka hare tse sa ba tiiseng, beke pele ho bokellwa semene. (2)

[50]

POTSO YA 3

3.1 Dayakeramo e bontsha reflex arc.



3.1.1 Fana ka TLHAKU e emetseng Sentral nevase sistimo. (1)

3.1.2 Motho o hatile sepekere ka leoto la hae mme ka potlako a le tlosa.

Hlalosa tsela ya refleks ekshene ho tloha ka nako eo a hatang sepekere ho fihlella ha a tlosa leoto. (5)

3.1.3 Ho dayakeramo e ka hodimo, **A**, **B**, **C** le **D** di emetse karolo tse fapaneng tsa nevase sistimo ya motho.

Kotsing ya kolo batho ba fapaneng ba fumane dikotsi tse fapaneng tsa nevase sistimo. Sepetlele ngaka e sebedisa objekthe e nthithi ho fala bohato ba maoto a mokudi ka mong ho etsa diteko tsa ho senyeha ha dineve.

Ngola TLHAKU e nepahetseng feela, bakeng sa polelo ka nngwe ho tse ka tlase ho bontsha sebaka se senyehileng sa nevase sistimo.

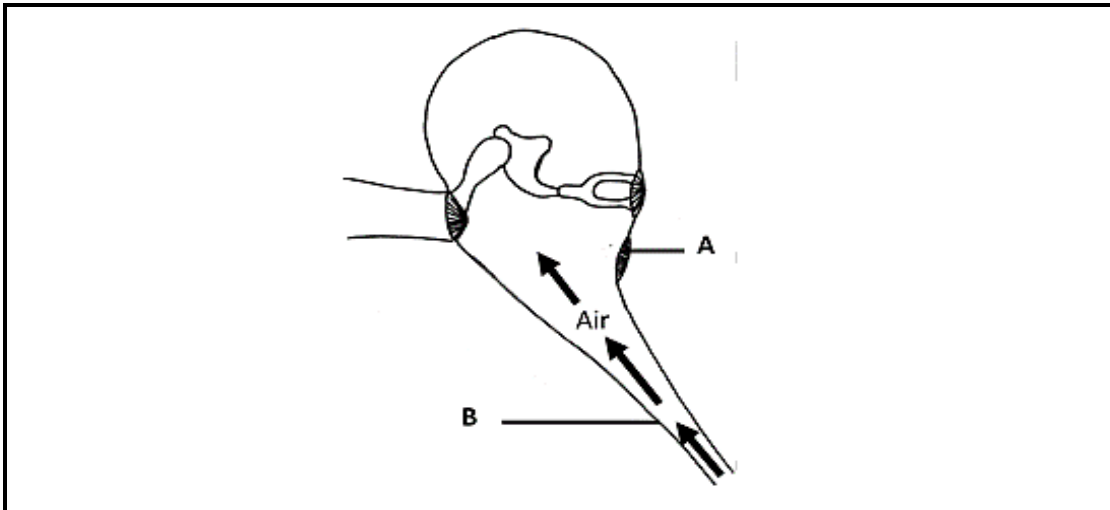
(a) Mokudi o utlwa ho falwa empa ha a tsebe ho sisinya maoto a hae. (1)

(b) Mokudi ha a utlwe ho falwa empa o tseba ho sisinya maoto a hae (1)

(c) Mokudi ha a utlwe ho falwa le maoto a hae ha a sisinyehe. (1)

(d) Mokudi ha a utlwe ho falwa kapa ho sisinya ditho tsa mmele o ka hodimo le o ka tlase (1)

3.2 Dayakeramo e ka tlase e bontsha tsebe e bohareng ya motho.



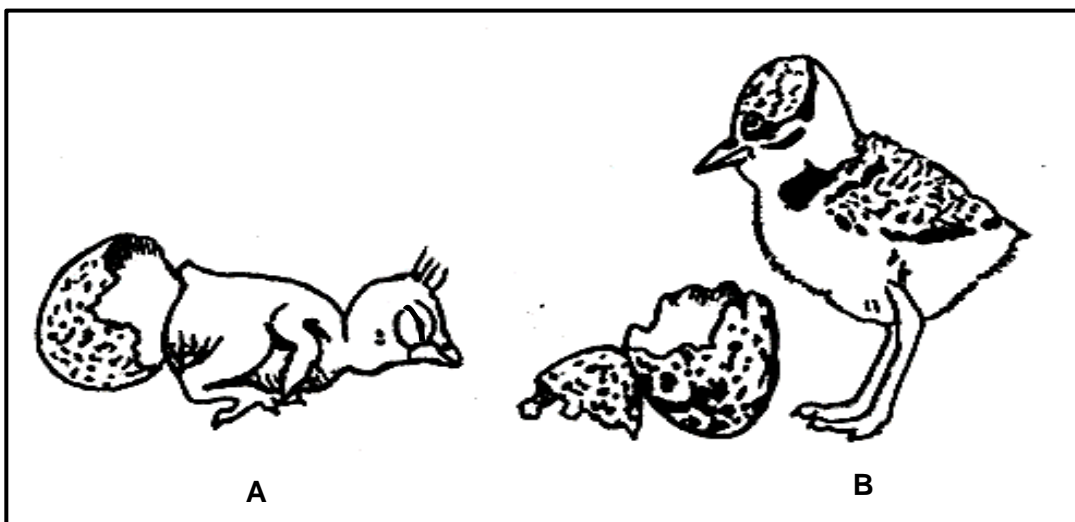
3.2.1 Bolela mosebetsi wa karolo ya **A**. (1)

3.2.2 Hlalosa motjha wa stimulase sa modumo LE mosebetsi wa dibopeho tse amehang ho toha ho thaempaniki membreine ho fihlella ho serebramo. (7)

3.2.3 Moya o kenang bohareng ba tsebe o tswa karolong efe ya mmele? (1)

3.2.4 Hlalosa hore na ke hobaneng ha moya o kena ka matla tsebeng e bohareng ka tjhupu ya **B** ha kगतello ya moya kantle ho mmele e eketseha. (4)

3.3 Dayakeramo e ka tlase e emetse ditsuonyana tse pedi hang kamora hoba di qhotswe.

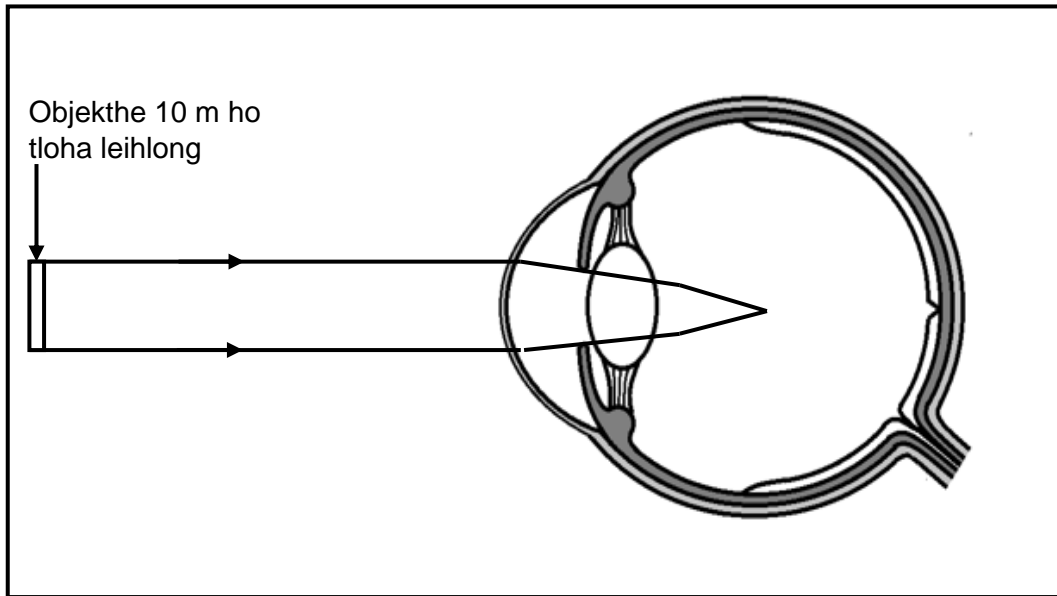


3.3.1 Bolela mofuta wa ho hola o bontshitsweng ho **A**. (1)

3.3.2 Fana ka lebaka le LE LENG le iponahatsang bakeng sa karabo ya hao ho POTSO YA 3.3.1. (1)

3.3.3 Hlalosa matshwao a MARARO a dinonyana tse hlahang di tseba ho iphelela, a etsang hore di kgone ho phela moo di dulang teng. (6)

3.4 Dayakeramo e ka tlase e bontsha leihlo la motho ya nang le pono e haufinyane.



- 3.4.1 Bolela sebopeliso sa leihlo se kobang kganya ka ho fetisisa. (1)
- 3.4.2 Fana ka dipha tse PEDI tsa sebopeliso sa leihlo tse etsang pono e haufinyane jwalo kaha ho bonahala ho dayakeramo. (2)
- 3.4.3 Hlalosa bokgoni ba pono ba motho ya nang le pono e haufinyane. (2)
- 3.4.4 Bolela mofuta wa lense e sebedisitsweng ho lokisa bofodi ba pono. (1)
- 3.4.5 Theibole e ka tlase e bontsha ketsahalo ya pono e haufinyane ho bana ba dilemo di 12 dinaheng tse hlano. (6)

LEBITSO LA NAHA	BANA BA NANG LE DILEMO TSE 12 BA NANG LE PONO E HAUFINYANE (%)
Singapore	62
Hong Kong	53
China	50
United States of America	20
India	10

Teroya bar kerafo ho bontsha datha e ho theibole. (6)

3.5 Motho o ne a tsielehile lehwatateng, ho se metsi. O ile a tshwanela ho tsamaya sebaka se selelele ho batla thuso. O ne a nyorilwe mme a lahlehetswe ke metsi mmeleng ka lebaka la ho fufulelwa ho fetisitseng.

Hlalosa homeostatiki mekhanisimo e bolokang boemo bo nepahetseng ba metsi mading a hae.

(7)
[50]

MATSHWAO OHLE A KAROLO YA B: 100
MATSHWAO OHLE: 150