



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

LIFE SCIENCES P1

NOVEMBER 2019

MARKING GUIDELINES – FINAL 18/11/2019

MARKS: 150

G Spillay
G SPILLAY
EXTERNAL MODERATOR
UMALUSI

18/11/2019

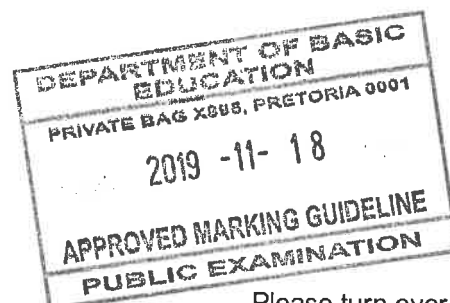
S. Cherry
S. CHERRY
18/11/2019
INT MOD.

Dr P. Preethlall
Dr P. Preethlall
UMALUSI Moderator
18/11/2019.

These marking guidelines consist of 11 pages +
the master for the transparency to mark Question 2.3.5

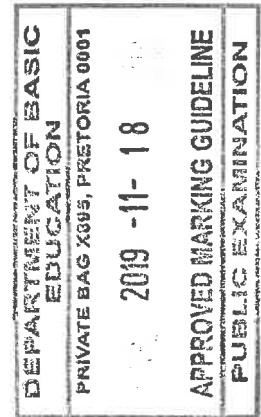
R Van Der Watt
R Van Der Watt
18/11/2019
INT MOD

P. B. Majozi
P. B. MAJOZI
UMALUSI
18/11/2019.



PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. **If more information than marks allocated is given**
Stop marking when maximum marks is reached and put a wavy line and 'max' in the right-hand margin.
2. **If, for example, three reasons are required and five are given**
Mark the first three irrespective of whether all or some are correct/ incorrect.
3. **If whole process is given when only a part of it is required**
Read all and credit the relevant part.
4. **If comparisons are asked for but descriptions are given**
Accept if the differences/similarities are clear.
5. **If tabulation is required but paragraphs are given**
Candidates will lose marks for not tabulating.
6. **If diagrams are given with annotations when descriptions are required**
Candidates will lose marks.
7. **If flow charts are given instead of descriptions**
Candidates will lose marks.
8. **If sequence is muddled and links do not make sense**
Where sequence and links are correct, credit. Where sequence and links are incorrect, do not credit. If sequence and links become correct again, resume credit.
9. **Non-recognised abbreviations**
Accept if first defined in answer. If not defined, do not credit the unrecognised abbreviation but credit the rest of the answer if correct.
10. **Wrong numbering**
If answer fits into the correct sequence of questions but the wrong number is given, it is acceptable.
11. **If language used changes the intended meaning**
Do not accept.
12. **Spelling errors**
If recognisable, accept the answer, provided it does not mean something else in Life Sciences or if it is out of context.
13. **If common names are given in terminology**
Accept, provided it was accepted at the national memo discussion meeting.
14. **If only the letter is asked for but only the name is given (and vice versa)**
Do not credit.



P. B. MAJOZI
UMALUSI



15. If units are not given in measurements

Candidates will lose marks. Memorandum will allocate marks for units separately.

16. Be sensitive to the sense of an answer, which may be stated in a different way.**17. Caption**

All illustrations (diagrams, graphs, tables, etc.) must have a caption.

18. Code-switching of official languages (terms and concepts)

A single word or two that appear(s) in any official language other than the learners' assessment language used to the greatest extent in his/her answers should be credited if it is correct. A marker that is proficient in the relevant official language should be consulted. This is applicable to all official languages.

19. Changes to the memorandum

No changes must be made to the memoranda without consulting the provincial internal moderator who in turn will consult with the national internal moderator (and the Umalusi moderators where necessary).

20. Official memoranda

Only memoranda bearing the signatures of the national internal moderator and the Umalusi moderators and distributed by the National Department of Basic Education via the provinces must be used.



P. B. MAJOZI
UMALUSI

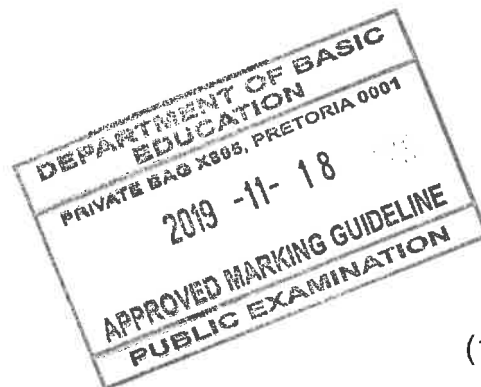
G S PILLAY
EXTERNAL MODERATOR
UMALUSI

Dr P. Preethlall
UMALUSI Moderator



SECTION A**QUESTION 1**

1.1	1.1.1	B✓✓		
	1.1.2	C✓✓		
	1.1.3	C✓✓		
	1.1.4	A✓✓		
	1.1.5	B✓✓		
	1.1.6	C✓✓		
	1.1.7	A✓✓		
	1.1.8	B✓✓		
	1.1.9	A✓✓		
	1.1.10	D✓✓		
			(10 x 2)	(20)
1.2	1.2.1	Chorionic villi✓		
	1.2.2	Cytokinesis✓		
	1.2.3	Invasive alien✓/Invasive exotic		
	1.2.4	Vagina✓		
	1.2.5	Deforestation✓		
	1.2.6	Prolactin✓		
	1.2.7	Gestation✓		
	1.2.8	Fallopian tubes✓/Oviducts		
	1.2.9	Puberty✓		(9)
1.3	1.3.1	A only✓✓		
	1.3.2	A only✓✓		
	1.3.3	B only✓✓	(3 x 2)	(6)
1.4	1.4.1	(a) Jelly layer✓/Zona pellucida		(1)
		(b) Cytoplasm✓/cytosol		(1)
		(c) Acrosome✓		(1)
	1.4.2	Oogenesis✓		(1)
	1.4.3	D✓		(1)
	1.4.4	E✓		(2)
		F✓		(2)
		(Mark first TWO only)		(7)
1.5	1.5.1	(a) Spinal cord✓		(1)
		(b) Corpus callosum✓		(1)
	1.5.2	(a) D✓ Cerebrum✓		(2)
		(b) B✓ Medulla oblongata✓		(2)
		(c) E✓ Cerebellum✓		(2)
				(8)



P. B. MAJOZI
UMALUSI

G S PILLAY
EXTERNAL MODERATOR
UMALUSI

TOTAL SECTION A: 50

Dr P. Preethlall
UMALUSI Moderator

SECTION B**QUESTION 2**

- 2.1 2.1.1 (a) Centromere✓ (1)
- (b) Homologous chromosomes✓ (1)
- (c) Spindle fibre✓/spindle threads (1)
- 2.1.2 Anaphase II✓ (1)
- 2.1.3 2, 1, 3✓✓ (2)
- 2.1.4 In metaphase I, the chromosomes arrange at the equator in homologous pairs✓ whereas in metaphase II, the chromosomes arrange at the equator singly✓ (2)
(Mark first ONE only) (8)
- 2.2 2.2.1 - Eggs are retained/hatch in the female body and the young are born live✓✓ (2)
- 2.2.2 2✓ (1)
(Mark first ONE only)
- 2.2.3 - The egg has the highest yolk✓/energy content
- that will allow maximum development before hatching✓ (2)
- 2.2.4 1✓ (1)
(Mark first ONE only) (6)
- 2.3 2.3.1 Long-sightedness✓ (1)
- 2.3.2 (a) - The lens becomes opaque✓/milky/cloudy
- and therefore does not allow the light to pass through✓ (2)
- (b) Surgery✓ (1)
(Mark first ONE only)
- 2.3.3 - The lens is less convex✓/the eye ball is too short/cornea is flat
- This causes the light rays to fall behind the retina✓
- A biconvex lens increases the refractive power✓
- Therefore light rays are focussed on the retina✓ to form a clear image (4)
- 2.3.4 Astigmatism✓ (1)

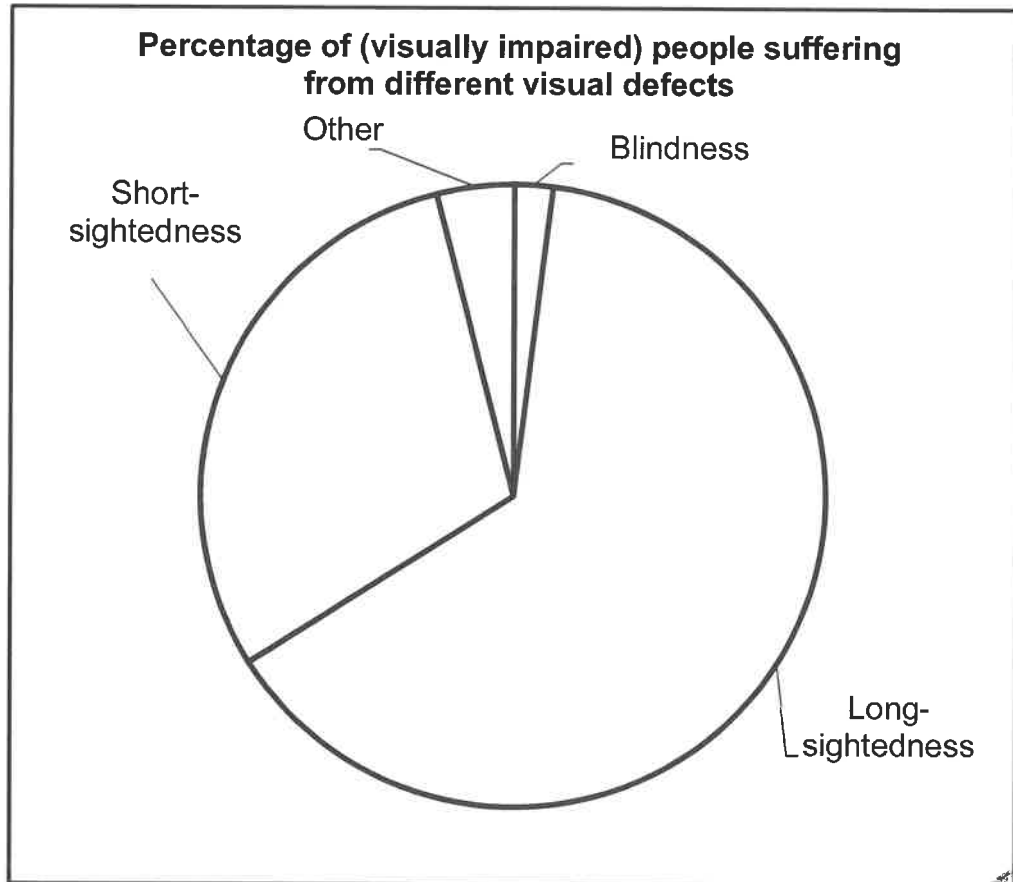


P. B. MAJOZI
UMALUSI

G S PILLAY
EXTERNAL MODERATOR
UMALUSI

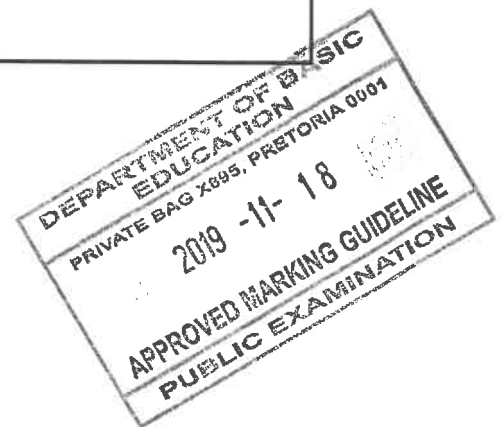
Dr P. Preethlall
UMALUSI Moderator

2.3.5



Calculations:

- Blindness: $2/100 \times 360^\circ = 7,2^\circ$
- Short-sightedness: $30/100 \times 360^\circ = 108^\circ$
- Long-sightedness: $64/100 \times 360^\circ = 230,4^\circ$
- Other: $4/100 \times 360^\circ = 14,4^\circ$



Criteria for assessing the graph:

Pie chart drawn (T)	1
Title of the graph shows the relationship between the two variables (H)	1
Correct calculations to determine the proportions (C)	2: All 4 correct 1: 1-3 correct
Correct proportions for the labelled sectors (P) (To be checked using prepared transparency – see Annexure A – Page 12)	2: All 4 sectors correct 1: 1-2 sectors correct

G S PILLAY
EXTERNAL MODERATOR
UMALUSI

Dr P. Preethlall
UMALUSI Moderator

P. B. MAJOZI
UMALUSI

(6)
(15)

QUESTION 3

- 3.1 3.1.1 (a) ADH✓/antidiuretic hormone/vasopressin (1)
- (b) Aldosterone✓ (1)
- 3.1.2 Adrenal✓gland (1)
- 3.1.3 3✓ (1)
- 3.1.4 - The blood will have a high salt content✓
 - and therefore less/no aldosterone will be secreted✓
 - resulting in less salt reabsorbed into the blood✓/more salt excreted in the urine
- The blood will have less water than normal✓
 - and therefore more ADH will be secreted✓
 - making the kidney tubules more permeable✓
 - resulting in more water reabsorbed into the blood✓/less water will leave the body with the urine Any (5)
- 3.2 3.2.1 Islets of Langerhans✓/pancreas (1)
- 3.2.2 Adrenalin✓ (1)
- 3.2.3 Same:
 - Type of food given✓
 - Concentration of adrenalin✓
 - Amount of adrenalin✓
 - Measuring tools used✓
 - Person measuring the glucose concentrations✓
 - Levels of activity✓
 - Age of patients✓
 - Body mass of patients✓
 - Health condition of patients✓
(Mark first THREE only) Any (3)
- 3.2.4 - Provides a baseline✓/starting level/point of reference/control
 - to compare with the effect of injecting adrenalin✓ (2)
- 3.2.5 - Hormones are proteins✓
 - and will therefore be digested✓/denatured making it ineffective

OR

- Since it enters the blood directly✓
 - it will reach the target organs faster✓


G S PILLAY
EXTERNAL MODERATOR
UMALUSI

Copyright reserved

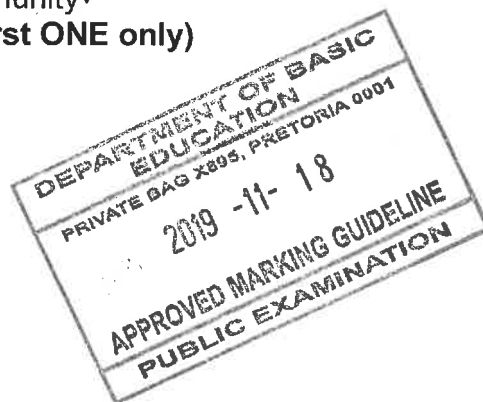
Dr P. Preethlall
UMALUSI Moderator

P. B. MAJOZI
UMALUSI (2)

Please turn over



- 3.2.6 - The blood glucose levels will increase✓
- because an increase in adrenalin stimulates the conversion of glycogen to glucose✓ (2)
- 3.2.7 Increases reliability✓ of the results (1)
(12)
- 3.3 3.3.1 - Biodiversity will decrease✓*
- The flow of the river decreases✓/size of habitat decreases
- This may affect migration patterns✓/spawning of fish
- Opening of floodgates increases pressure of water flow✓
1 compulsory* + any 1 other (2)
- 3.3.2 - The water quality will decrease✓*
- as the fertilisers increase the amount of nutrients✓/cause eutrophication
- which will result in algal bloom✓
- This will block-out the sunlight✓
- The under-water plants cannot photosynthesise✓/die
- Animals that feed on plants also die✓
- This leads to an increase in decomposers✓ feeding off the dead organisms
- The decomposers deplete the oxygen in the water✓
1 compulsory* + any 4 others (5)
- 3.3.3 - Constant availability of water✓
to increase crop yield✓
- More food will be available✓
and hence less money spent on buying agricultural products✓
- More people are employed in the management of agriculture✓/dam/tourism
therefore more income stability for the people in the community✓
(Mark first ONE only) Any 1 x 2 (2)
(9)

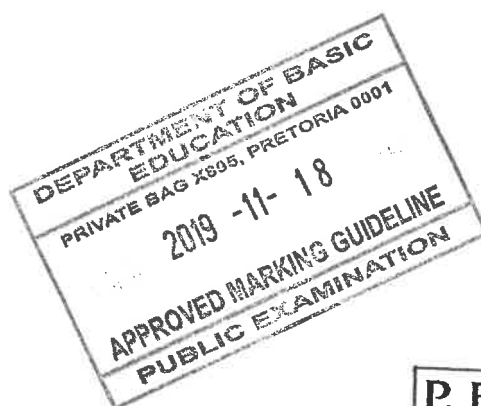


G S PILLAY
EXTERNAL MODERATOR
UMALUSI

Dr P. Preethlall
UMALUSI Moderator

P. B. MAJOZI
UMALUSI

- 3.4 3.4.1 $8,7 - 3,8 \checkmark$ **OR** $8,7 - (2,5 + 0,5 + 0,8)$
 $= 4,9 \checkmark$ billion tons (2)
- 3.4.2
- There would be an increase in global warming \checkmark *
 - The burning of plastic releases carbon dioxide \checkmark into the atmosphere
 - leading to the enhanced greenhouse effect \checkmark
 - increasing the amount of heat trapped in the atmosphere \checkmark
 - causing an increase in temperature \checkmark
- 1 compulsory* + any 3 others (4)
- 3.4.3
- Supply special bins \checkmark /garbage bags to encourage the collection of plastic \checkmark
 - Bring recycling stations close to communities \checkmark to increase access \checkmark
 - Increase campaigns \checkmark / awareness/ education on the benefits of recycling \checkmark
 - Giving incentives \checkmark for collecting more plastics \checkmark
- (Mark first TWO only)** Any (2 x 2) (4)
(10)
[40]



P. B. MAJOZI
UMALUSI

G S PILLAY
EXTERNAL MODERATOR
UMALUSI

Dr P. Preethlall
UMALUSI Moderator

SECTION C

QUESTION 4

Plant’s response to gravity (P)

When a plant is placed horizontally:

- auxins✓
- are attracted by gravity✓

Root

- There is a high concentration of auxins on the lower side of the root✓
- which inhibits growth/cell elongation/cell division on the lower side✓
- There is a low concentration of auxins on the upper side of the root✓
- which stimulates growth/cell elongation/cell division on the upper side✓
- The upper side of the root grows faster✓/Uneven growth occurs
- causing the root to grow/bend downwards✓
- The root grows towards gravity✓/The root is positively geotropic

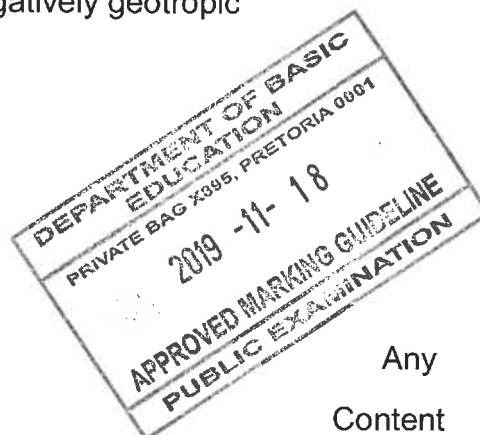
Stem

- There is a high concentration of auxins on the lower side of the stem✓
- which stimulates growth/cell elongation/cell division on the lower side✓
- There is a low concentration of auxins on the upper side of the stem✓
- which inhibits growth/cell elongation/cell division on the upper side✓
- The lower side of the stem grows faster✓/Uneven growth occurs
- causing the stem to grow/bend upwards✓
- The stem grows away from gravity✓/The stem is negatively geotropic

Maintaining balance (B)

When the position of the head changes, the maculae:

- are stimulated✓
- The stimulus is converted to an impulse✓
- which is transmitted by the auditory nerve✓
- to the cerebellum✓
- where the impulse is interpreted✓
- The cerebellum sends impulses to the muscles✓
- and balance is restored✓



(11)

Any

(6)

Content
Synthesis

(17)

(3)

(20)

ASSESSING THE PRESENTATION OF THE ESSAY

Relevance	Logical sequence	Comprehensive
All information provided is relevant to the question	Ideas arranged in a logical/ cause-effect sequence	Answered all aspects required by the essay in sufficient detail
All information is relevant to the: - Plant response to gravity - Maintenance of balance	The sequence of events in the: - Plant response to gravity - Maintenance of balance are in a logical sequence	The following must be included: - Plant response to gravity (P) (7/11) - Maintaining balance (B) (4/6)
There is no irrelevant information		
1 mark	1 mark	1 mark

TOTAL SECTION C: 20
GRAND TOTAL: 150

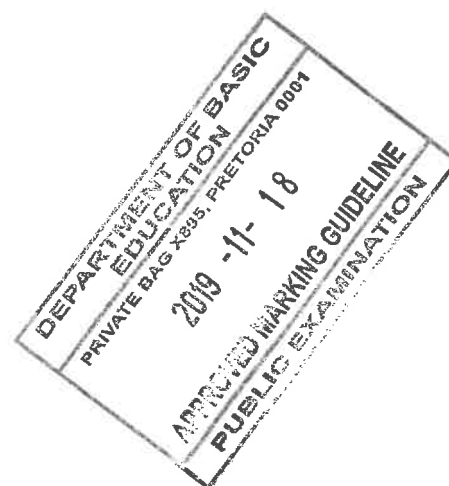
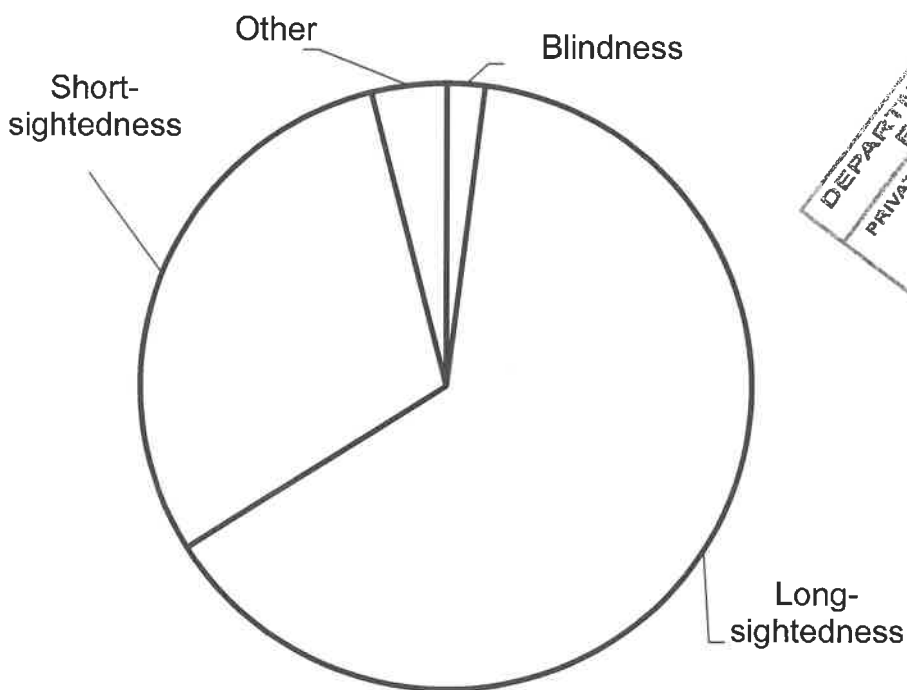
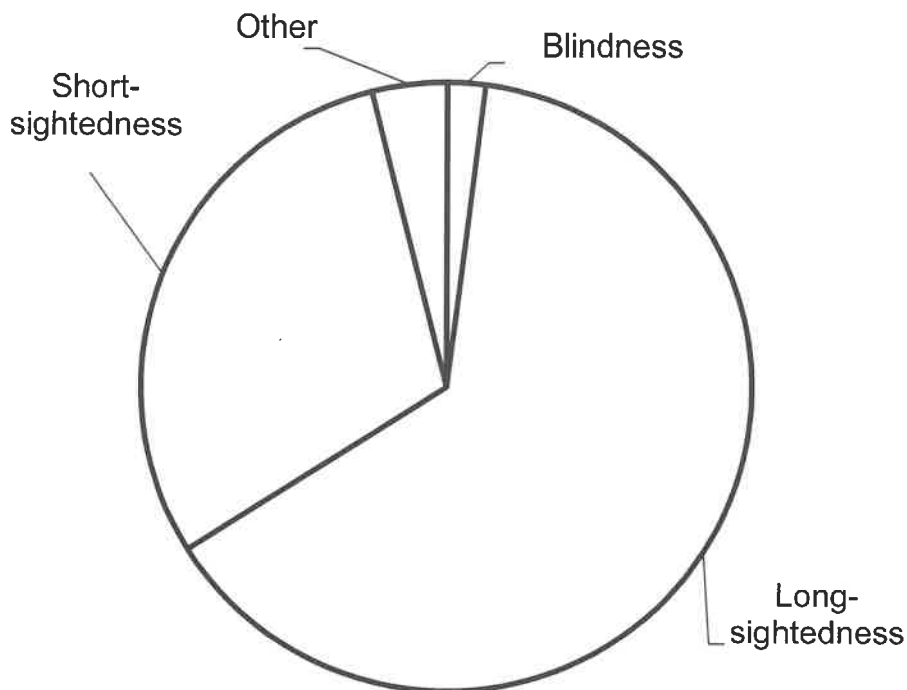
G S PILLAY
EXTERNAL MODERATOR
UMALUSI

Dr P. Preethlall
UMALUSI Moderator

Copyright reserved

P. B. MAJOZI
UMALUSI

Annexure A – Master for transparency to mark Question 2.3.5



G S PILLAY
EXTERNAL MODERATOR
UMALUSI

Copyright reserved

Dr P. Preethlall
UMALUSI Moderator

P. B. MAJOZI
UMALUSI