LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

[redacted]

GRADE 12

LIFE SCIENCES

JUNE EXAMINATION

2026

MARKING GUIDELINES

MARKS: 150

This MARKING GUIDELINES consists of 10 pages

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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 part of it is required**
   Read all and credit relevant part.

4. **If comparisons are asked for and descriptions are given**
   Accept if 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 becomes correct again, resume credit.

9. **Non-recognized abbreviations**
   Accept if first defined in answer. If not defined, do not credit the unrecognised abbreviation but credit the rest of 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 recognizable, accept, provided it does not mean something else in Life Sciences or if it is out of context.

13. **If common names given in terminology**
    Accept, provided it was accepted at the National memo discussion meeting.

14. **If only letter is asked for and only name is given (and vice versa)**
    No credit.

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15. **If units are not given in measurements**
Memorandum will allocate marks for units separately, except where it is already given in the question.

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

17. **Caption**
Credit will be given for captions to all illustrations (diagrams, graphs, tables, etc.) except where it is already given in the question.

18. **Code-switching of official languages (terms and concepts)**
A single word or two that appears 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.



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SECTION A

QUESTION 1

1.1			
	1.1.1	A✓✓	
	1.1.2	D✓✓	
	1.1.3	A✓✓	
	1.1.4	D✓✓	
	1.1.5	B✓✓	
	1.1.6	C✓✓	
	1.1.7	B✓✓	
	1.1.8	A✓✓	
	1.1.9	D✓✓	
	1.1.10	C✓✓	
		(10x2)	**(10)**
1.2			
	1.2.1	Complete dominance✓	
	1.2.2	Multiple sclerosis✓	
	1.2.3	Independent assortment✓	
	1.2.4	Umbilical vein✓	
	1.2.5	Heterozygous✓	
	1.2.6	Endometrium✓	
	1.2.7	Haploid✓	
	1.2.8	Glucagon✓	
	1.2.9	Allantois✓	
	1.2.10	Reflex action✓	
		(10 x1)	**(10)**
1.3			
	1.3.1	A only ✓✓	
	1.3.2	A only✓✓	
	1.3.2	B only ✓✓ (3 x 2)	**(6)**
1.4			
	1.4.1	(a) Pupil✓	(1)
		(b) Choroid✓	(1)
	1.4.2	(a) A✓ – Iris✓	(2)
		(b) D✓ - Yellow spot✓	(2)
	1.4.3	C✓	(1)
			(7)

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1.5			
	1.5.1	(a) Prostate gland✓	(1)
		(b) Vas deferens✓/sperm duct	(1)
	1.5.2	(a) B ✓- Urethra✓	(2)
		(b) D✓– testis✓	(2)
	1.5.3	Spermatogenesis✓	(1)
			(7)
		TOTAL SECTION A:	**(50)**



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SECTION B **QUESTION 2**			
2.1			
	2.1.1	(a) Eustachian tube✓	(1)
		(b) Cochlea✓	(1)
	2.1.2	Absorbs the pressure set up in the inner ear✓ **Mark first ONE only**	(1)
	2.1.3	- As we go higher, atmospheric pressure decreases✓ - The pressure from the outside of the tympanic membrane decreases✓ - compared to pressure from inside it✓ - This causes discomfort or pain✓ - Swallowing or yawning allows air to escape from the middle ear through the Eustachian tube✓equalising pressure on both sides of the tympanic membrane✓ Any	(5)
	2.1.4	- Sound vibrations are transmitted from the large tympanic membrane✓ - to the smaller oval window✓ - through the ossicles✓ - which are arranged from larger to the smallest✓ - This concentrates the vibrations✓ amplifying them Any	(3)
	2.1.5	- A change in speed/direction of movement of the head✓ - stimulates the cristae✓ - The stimulus is converted into an impulse✓ - The impulse is sent to the cerebellum✓ - through the auditory nerve✓ - The cerebellum sends impulses to the skeletal muscles✓ to restore balance Any	(5)
			(16)
2.2			
	2.2.1	(a) Medulla oblongata✓	(1)
		(b) Spinal cord✓	(1)
	2.2.2	Cerebrum✓	(1)
	2.2.3	- Joins the left and right hemispheres of the cerebrum✓ - Allow communication between the two hemispheres✓	(2)
			(5)
2.3		- Every organ and gland is controlled by two sets of nerves✓/double innervation - that act antagonistically✓ - to control involuntary events✓ - Sympathetic*✓nerves - stimulates a response✓/ example - Parasympathetic*✓ nerves - inhibits a response✓/example **TWO* compulsory marks +** Any 3	**(5)**

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2.4			
	2.4.1	(a) Kidney✓	(1)
		(b) Adrenal gland✓	(1)
		(c) Aldosterone✓	(1)
	2.4.2	- Walls of the renal tubules✓/distal convoluted tubule and collecting duct - become more permeable✓ - allowing for reabsorption of sodium ions✓	(3)
			(6)
2.5			
	2.5.1	- B✓ - D✓ **Mark first TWO only**	(2)
	2.5.2	- Vaginal bleeding✓ - Abdominal✓/Pelvic pain **Mark first TWO only**	(2)
	2.5.3	- Poor/no placental development✓ - Insufficient space✓ - Decreased blood supply✓ - Insufficient nutrients/oxygen✓ **Mark first THREE only**	(3)
	2.5.4	- The scar tissue✓ - may partially block the Fallopian tube✓ - preventing the embryo from reaching the uterus✓ - resulting in implantation in the Fallopian tube✓ Any	(2)
			(9)
2.6			
	2.6.1	Constricted✓	(1)
	2.6.2	- Less blood flows to the skin✓ - less heat is lost✓ - less sweat is formed✓ and therefore less evaporation - and less cooling of the skin✓ - Body heat is conserved✓ Any	(3)
2.7			
	2.7.1	Blood✓	(1)
	2.7.2	- The pituitary gland/hypophysis is damaged✓/malfunctioning and secretes large amounts of TSH✓ - The thyroid gland secretes less thyroxin✓ and this will not have a negative feedback effect on the pituitary gland to secrete less TSH✓ (2 x 2)	(4)
			(9)
			[50]

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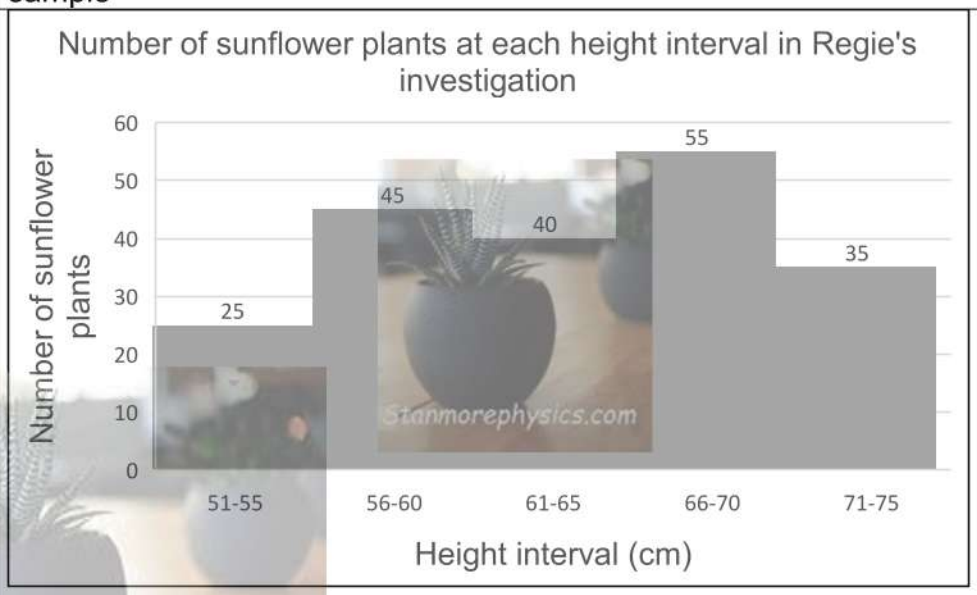
QUESTION 3

3.1.			
	3.1.1		
		(a) DNA✓/ Deoxyribonucleic Acid	(1)
		(b) Ribosome✓	(1)
	3.1.2		
		(a) 4✓	(1)
		(b) 2✓	(1)
	3.1.3.	Translation *✓ -Each tRNA carries a specific amino acid ✓ - When the anticodon on tRNA✓ - matches the codon on mRNA ✓ - then tRNA brings the required amino acid to the ribosome✓ - amino acids become attached to each other by the peptide bonds ✓ - to form the required protein ✓ **1*** compulsory + Any 5	**(**6)
	3.1.4		
		DNA / RNA Has deoxyribose sugar✓ / Has ribose sugar✓ Has nitrogen base thymine ✓ (T) / Has nitrogen base uracil ✓ (U) **Mark first ONE only; NO MARK FOR THE TABLE**	(2)
			(12)

3.2.			
	3.2.1		
		(a) Holds sister chromatids together✓ / attachment point for spindle fibres **Mark first ONE only**	(1)
		(b) Attach to chromosomes✓/ align chromosomes at the equator/ pulls chromosomes to the opposite poles **Mark first ONE only**	(1)
	3.2.2	Metaphase I ✓	(1)
	3.2.3	Anaphase 1✓	(1)
	3.2.4	crossing over ✓	(1)
	3.2.5		
		(a) 4 ✓	(1)
		(b) 2 ✓	(1)
		(c) 4 ✓	(1)

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	3.2.6	DNA replication✓	(1)
			(9)

3.3			
	3.3.1	To increase the reliability of the investigation✓✓/ increases the chances of the sample being representative of the plant population.	(2)
	3.3.2 .	• Amount of light✓ • Soil type✓ • Any other environmental factor **Mark first TWO only**	(2)
	3.3.3	Regie included a larger number of sunflower plants✓ / 10 plants in the sample	(1)
	3.3.4		
		Rubric/criteria for marking the graph	

Criteria	Mark allocation	
Correct type of graph: histogram drawn (T)	1	
Caption of the graph with both variables (C)	1	
Correct labels for X and Y-axis including unit for X-axis (L)	1	
Correct scale for Y-axis with equal width of bars with no spaces for X-axis (S)	1	
Plotting: (P) 1- 4 coordinates are plotted correctly All 5 coordinates are plotted correctly	 1 2	(6)

			(11)

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3.4.			
	3.4.1		
		(a) X^aY ✓	(2)
		(b) X^AY ✓	(2)
	3.4.2.	(3/7 X 100) ✓= 42.86 ✓/ 42.9 / 43%	(2)
	3.4.3	3	(1)
	3.4.4	-Female living ✓with Lesch-Nyhan syndrome carries two / only recessive alleles / ✓X^aX^a - Sons / Males inherit one X chromosome ✓from their mothers - Sons/ males need only one recessive allele to have Lesch-Nyhan syndrome ✓and therefore must inherit X^a from their mother✓ Any Three	(3)
			(10)

3.5.			
	3.5.1.	AB✓	(1)
	3.5.2.	4✓/ Four	(1)
	3.5.3.	I^B ✓	(1)
	3.5.4.	People from blood groups AB and B ✓possess the B allele and since people with blood group AB and B together are less frequent than A or O✓, the B allele is the least frequent	(2)
	3.5.5.	Many people that are of blood groups A and B✓ might be heterozygous ✓/ I^Ai and I^Bi many offspring could end up with ii combination ✓ OR Since the proportion of the population with O type is the greatest✓ the possibility of reproduction ✓between individuals with O group is greater and many offspring could end up with O blood group ✓	(3)
			(8)
			[50]
		TOTAL SECTION B:	**100**
		GRAND TOTAL:	**150**

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