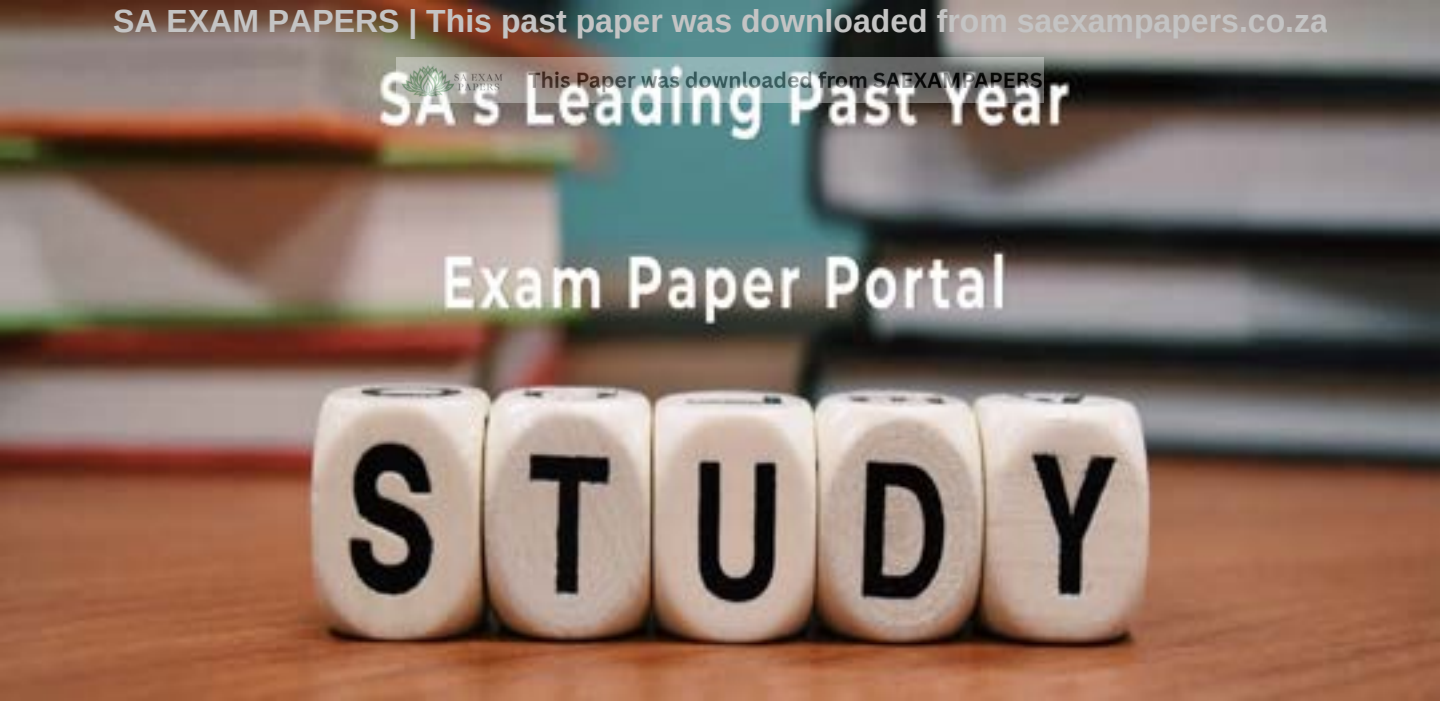


education
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

LIFE SCIENCES P1

SEPTEMBER 2025

MARKING GUIDELINES

MARKS: 150

This marking guideline consists of 11 pages.

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
   Marks for 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 if it appears on marking guidelines.

14 **If only the letter is asked for but only the name is given (and vice versa)**
   Do not credit.

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

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

17. **Caption**
All illustrations (diagrams, sketches, graphs, tables, etc.) must have a cation.

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 marking guideline without consulting the cluster leader who in turn will consult with the curriculum implementer.

M.M. Nkwanyana

SECTION A

QUESTION 1

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

1.2	1.2.1	Testosterone✓		
	1.2.2	Ovarian cycle✓		
	1.2.3	Epididymis✓		
	1.2.4	Vasodilation✓		
	1.2.5	Tropism✓		
	1.2.6	Prolactin✓		
	1.2.7	Medulla oblongata✓		
	1.2.8	Thyroxin✓		
	1.2.9	Autonomic✓nervous system		
	1.2.10	Hormones✓	(10 x 1)	**(10)**

1.3	1.3.1	None ✓✓		
	1.3.2	B only ✓✓		
	1.3.3	None ✓✓		
	1.3.4	Both A and B ✓✓	(4 x 2)	**(8)**

1.4	1.4.1	External✓		(1)
	1.4.2	Ovipary✓/ oviparous		(1)
	1.4.3	- A large number of gametes from the male and female fish released✓ - the male and female fish are close to each other✓/ the male fish release the sperms closer to the eggs/ the gametes of both male and female are close to each other	Any	(2)
	1.4.4	- The eggs are laid in water✓ - Which prevents them from drying out✓/ dehydration		(2) **(6)**

1.5 1.5.1 (a) Vas deferens✓/Sperm duct (1)

1.5.2 - Secrete a fluid✓
- Which further increase the mobility of the male gametes/ sperm cells✓ (2)

1.5.3 Spermatogenesis✓ (1)

1.5.4 - The laptop radiates / releases heat✓
- Which will increase the temperature of the scrotum✓
- Resulting in an increase in the temperature of the testes✓
- Sperm production will be negatively affected✓
- Therefore, resulting in less sperms or unhealthy sperms being produced✓

Any (2)

TOTAL SECTION A: 50

M.M. Ndlovu

SECTION B
QUESTION 2

2.1 2.1.1 F✓ – vagina✓ (2)

2.1.2 (Diploid) zygote ✓ (1)

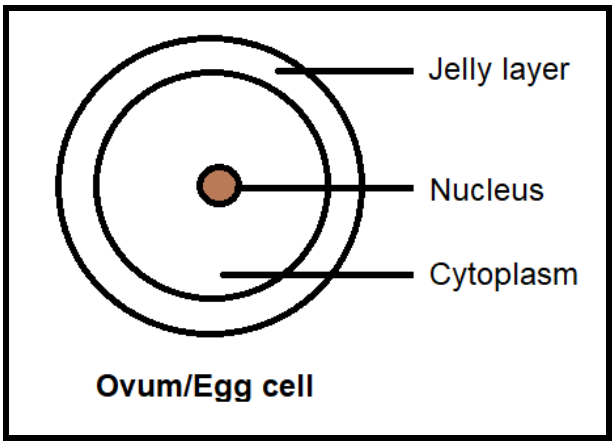
2.1.3 - Encloses and protects✓ the developing embryo /foetus
- Contracts✓ during labour for childbirth (2)

2.1.4 - Luteinising hormone✓ / LH (1)

2.1.5 - Part **D** /endometrium breaks down✓/ disintegrate
- Such that the Blood together with the unfertilised egg✓
- leaves the body of the woman through the vagina✓ any (2)

2.1.6 - Part **A**/ fallopian tubes will be blocked✓ prevents the sperms from reaching the ovum✓. (2)

2.1.7



Description	Mark allocation
Caption (**C**)	✓
Drawing (**D**)	✓
Any label(**L**)	✓

(3)
(13)

M.M. Nakwathwa

2.2 2.2.1 Oestrogen✓ (1)

2.2.2 Day 14 ✓ (1)

2.2.3 - if fertilisation occurs
- the corpus luteum does not disintegrate✓/ degenerate/ shrink
- it continues to secrete progesterone✓/hormone **C**
- The high progesterone levels✓in the blood
- will inhibit the pituitary gland✓from secreting hormone **A**/ FSH✓
- ensuring that no new follicles are formed✓

Any (5)
(7)

2.3 2.3.1 Placenta✓ (1)

2.3.2 - Nutrients/ oxygen will not be transported to the foetus✓,therefore no growth will occur✓/ foetus will die/ abort since there will be no energy produced
- Waste products/ CO_2 will not be transported back to the placenta✓ increasing toxicity✓,resulting in death of the foetus

Any (1 x2) (2)

2.3.3

Vein	Artery
High oxygen content✓	Low oxygen content✓
High Nutrient content✓	Low Nutrient content ✓
Low CO_2 content✓	High CO_2- content✓
Low Nitrogenous waste✓	High Nitrogenous waste✓

(Mark first TWO only)

Any (2x2) + 1 for table (5)
(8)

2.4 2.4.1 The maintance of a constant internal✓ water balance✓ (2)

2.4.2 Kidney✓ (1)

2.4.3 (a) ADH✓/ antidiuretic hormone (1)

(b) Pituitary gland✓/ hypophysis (1)

2.4.4 - The tumor on gland A/ pituitary gland will reduce the size of the pituitary gland✓
- Therefore, less ADH✓/ Hormone **B** will be secreted
- Less ADH will decrease the permeability of the renal tubes✓
- Less water will be reabsorbed✓ back into the blood✓ (5)
- While most of the water will be lost as urine✓

(10)

2.5 2.5.1 Blood glucose level✓ (1)

2.5.2
- Weight of the patient✓
- Age of patient✓
- Period of fasting✓
- Amount of glucose solution given to patient✓
- Time of measurement for all patients
- Instrument used for measuring glucose level✓

Any (1)

2.5.3 After 2 hours, their glucose levels were less than 200 mg/ 100ml✓✓ (2)

2.5.4
- the pancreas will secrete glucagon✓
- glucagon will stimulate the liver✓ to covert the stored glycogen back into glucose✓
- causing the glucose level to increase back to 90mg/ 100ml✓/ back to normal.

Any (2)

2.6
- Receptor cells✓
- in the carotid artery✓ in the neck are stimulated
- to send impulses to the medulla oblongata✓ in the brain
- medulla oblongata stimulates breathing muscles✓/intercostal muscles and diaphragm
- and heart✓
- breathing muscles contract more actively✓
- this increases the rate and depth of breathing✓
- the heart beats faster✓
- more carbon dioxide is taken to the lungs and exhaled✓
- the carbon dioxide in the blood returns back to normal

Any (6)
(6)
[50]

M.M. Nakwathwa

QUESTION 3

3.1 3.1.1 - To remove the effect of gravity✓
- on the direction of growth of young roots (radicles)✓ (2)

3.1.2 Radicles in diagram **B** will grow✓and bend towards gravity✓ (2)

3.1.3 The force of gravity has an effect on the direction of growth of young roots (radicles)✓✓ (2)
(6)

3.2 3.2.1 - A reflex action is the response to the stimulus✓
- whereas A reflex arc is the path taken by an impulse during a reflex action✓ (2)

3.2.2 (a) It causes abnormalities in the nerves that supply your feet, legs, hands, and arms✓ (1)

(b) Weakness on foot and lower leg muscles✓ (1)

3.2.3 Motor✓ (1)

3.2.4 Myelin sheath✓ (1)

3.2.5 - Axon is no longer insulated✓
- This causes the speed of transmission of nerve impulses to decrease✓
- which can lead to a delayed response✓and
- therefore, loss of muscle control✓ (4)
(10)

3.3 3.3.1 (a) - Regulates the amount of light entering the eye✓
- Controlling the size of the pupil✓ (2)

(b) - Contains nutrients for the inner eye✓
- Maintains eyeball shape✓
- Transparent to allow for transmission of light to retina✓
Mark first TWO only (2)

3.3.2 The cornea is transparent to allow light to enter the eye✓ and it is curved to allow for refraction of light✓ (2)

3.3.3 - Ciliary muscles contract✓
- Suspensory ligaments slacken✓
- Tension on the lens decreases✓
- Lens becomes more convex✓/ bulged
- Refractive power of lens will increase✓/ light rays are refracted more Any (4)
(10)

3.4	3.4.1	Cochlea✓		(1)
	3.4.2	Part **D**/round window prevents pressure build-up of waves✓/absorbs pressure wave set up by tympanic membrane in the inner ear/eases sound waves out of inner ear		(1)
	3.4.3	Part **A**/Tympanic membrane has a larger surface area✓than the part **B**/oval window✓		(2)
	3.4.4	- No vibrations will occur✓ - and no pressure wave will be created in the inner ear✓ - Organ of Corti/hair cells will not be stimulated✓ - Therefore, impulses will not be sent to the cerebrum✓	Any	(2)
	3.4.5	- Ossicles will not vibrate freely✓ - to transmit vibrations to the inner ear✓/causing partial deafness **OR** - Cannot equalise pressure✓on the either side of tympanic - membrane leading to pain✓/ middle ear infection/ a burst auditory canal/ vibrations not being transmitted/ partial deafness		(2)
	3.4.6	- Change in speed✓ and direction of head - Stimulates the cristae (receptors)✓ - Stimulus is converted to an impulses✓ - Impulse is transmitted to the cerebellum✓ - Via the auditory nerve✓ - The cerebellum✓ sends impulses to voluntary / skeletal - muscles✓to maintain balance	Any	(4) **(12)**

M. M. Makwakwa

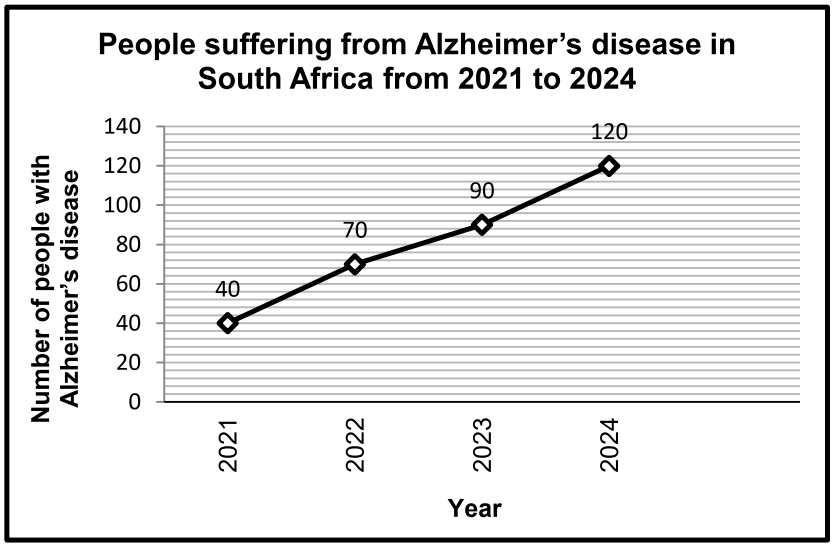
.5 3.5.1 - Memory loss✓
- Confusion✓ (2)

3.5.2 - Not all people suffering from Alzheimer's disease are recorded✓
- Poor health facilities✓ Any (1)

3.5.3 $\frac{120 - 40}{40}$]✓ $\times 100$ ✓

= 200 %✓ (3)

3.5.3



Criteria for marking graph:

Criteria	Mark allocation
Line graph is drawn (**T**)	1
Caption of the graph includes both variables (**C**)	1
Correct labels on X-axis and Y-axis (**L**)	1
Correct scale for X and Y-axis (Equal spacing between intervals for each axis (**S**)	1
Plotting: (**P**) 1-3 co-ordinates plotted correctly All 4 co-ordinates plotted correctly	 1 2

(6)
(12)
[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150