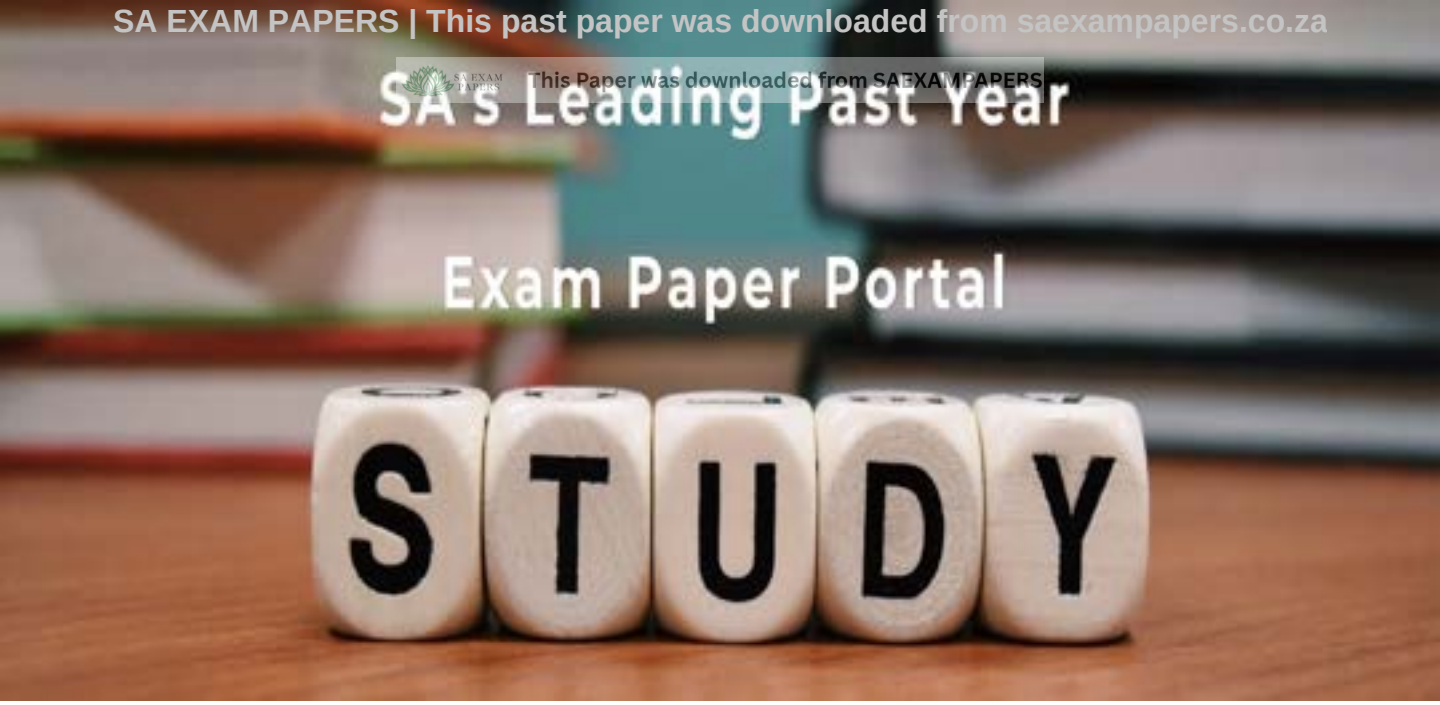


DEPARTMENT OF EDUCATION
DEPARTEMENT VAN ONDERWYS
LEFAPHA LA THUTO
ISEBE LEZEMFUNDO

PROVINCIAL PREPARATORY EXAMINATION

GRADE 12

LIFE SCIENCES

PAPER 1

SEPTEMBER 2025

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 10 pages.

PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. **If more information than marks allocated is given**
   Stop marking when maximum marks are 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 but 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 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 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 letter is asked for but only name is given (and vice versa)**
    Do not credit.

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, drawings, graphs, tables, etc.) must have a caption.

18. **Code-switching of official languages (terms and concepts)**
A single word or two that appears in any official language other than the learner's assessment language used to the greatest extent in his/her answers should be credited, provided 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 marking guidelines**
No changes must be made to the marking guidelines without consent of examiner and 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	A ✓✓		
	1.1.6	A ✓✓		
	1.1.7	B ✓✓		
	1.1.8	D ✓✓		
	1.1.9	C ✓✓		
	1.1.10	C ✓✓	(10 x 2)	**(20)**
1.2	1.2.1	Amniotic ✓ egg		
	1.2.2	Synapse ✓/Synaptic gap		
	1.2.3	Puberty ✓		
	1.2.4	Ovulation ✓		
	1.2.5	Sympathetic ✓ nervous system		
	1.2.6	Growth hormone ✓ **(DO NOT ACCEPT 'GH')**		
	1.2.7	Precocial ✓ development		
	1.2.8	Gibberellins ✓	(8 x 1)	**(8)**
1.3	1.3.1	A only ✓✓		
	1.3.2	A only ✓✓		
	1.3.3	A only ✓✓	(3 x 2)	**(6)**
1.4	1.4.1	Suspensory ligaments ✓		(1)
	1.4.2	Allows light to enter the eye ✓		(1)
	1.4.3	(a) F ✓ - Choroid ✓		(2)
		(b) A ✓ - Retina ✓		(2)
	1.4.4	Cataracts ✓		(1)
				(7)
1.5	1.5.1	Moto r✓ neuron/efferent		(1)
	1.5.2	- Has **many** dendrites ✓ - Cell body is at the one end of the neuron ✓ - Only the axon has a myelin sheath ✓ **(Mark first TWO only)**	Any	(2)
	1.5.3	(a) Axon ✓		(1)
		(b) Nucleus ✓		(1)
	1.5.4	A ✓ - Dendrites ✓		(2)
	1.5.5	Muscle(s) ✓ and gland(s) ✓		(2)
				(9)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1
- It increases chances of fertilisation ✓
- Gametes are protected from predation ✓ /environmental factors/dessication
- Water is not needed ✓
- Fewer gametes are needed ✓
- The male and female gametes are in close proximity ✓/ gametes are in close contact Any (2)

2.1.2
- Provides a safe environment ✓ for development
- Supplies oxygen ✓ (2)

2.1.3
- Female has ova ready ✓ to mate again after male gives birth ✓ which lead to increased chances of survival
- Internal fertilization ✓ where the gametes are protected ✓
- Organisms develop before they hatch ✓ in the pouch and are independent ✓

(Mark first ONE only) (2 x 1) (2)
(6)

2.2 2.2.1 To compare the concentration of glucose in the blood of two people/Mo and Dan before and after ingesting glucose. ✓ (1)

2.2.2 145 – 125 ✓ = 20 ✓ mg/100cm^3
(Accept numbers in range of 144 - 146 for the first value)
(Accept numbers in range of 124 - 126 for the second value) (2)

2.2.3 Dan ✓ (1)

2.2.4
- Not enough glucose is broken down ✓/energy (ATP)
- during cellular respiration ✓ (2)

2.2.5
- The high glucose level ✓/99/98/100 cm^3
- stimulates the pancreas ✓/islets of Langerhans
- to secrete insulin ✓ into the blood
- that stimulate liver/muscle cells ✓
- to convert glucose into glycogen ✓ in the liver and muscle cells
- decreasing the blood glucose levels ✓ Any (4)
(10)

2.3 2.3.1 Vagina ✓ (1)

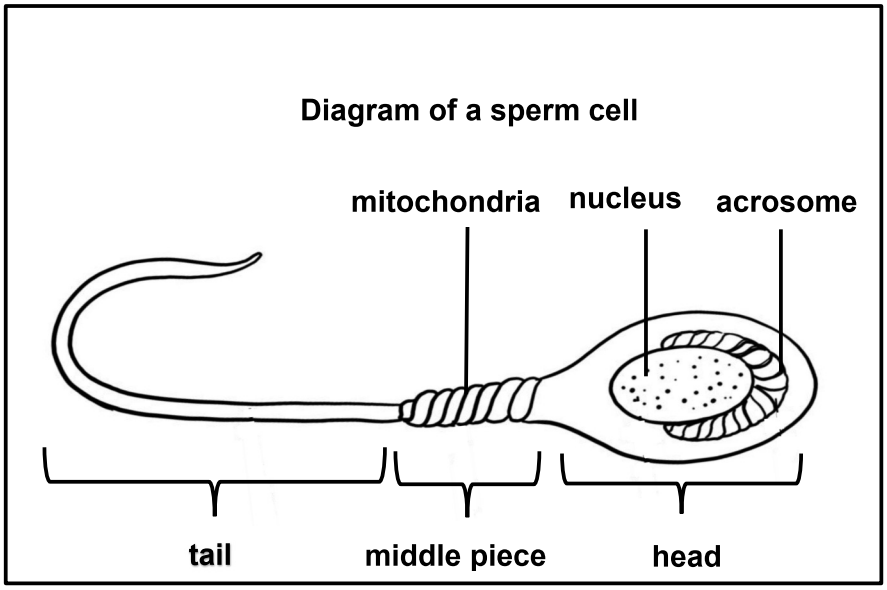
2.3.2 Fertilisation ✓ (1)

2.3.3 The secretion is alkaline ✓/a base fluid which neutralises the acidic ✓ conditions of the vagina/part **H** (2)

2.3.4
- The sperm will not be able to reach the urethra ✓
- therefore, no sperm in the semen ✓
- and no fertilisation will take place ✓ (3)

2.3.5
- Oogenesis ✓
- Diploid cells/germinal epithelial cells in the ovary undergo mitosis ✓
- to form numerous follicles. ✓
- At the onset of puberty ✓
- and under the influence of FSH, ✓
- one cell inside a follicle enlarges and undergoes meiosis. ✓
- Of the four cells that are produced, only one survives to form a mature, **haploid** ovum. ✓
- This occurs in a monthly cycle. ✓ Any (5)

2.3.6



Criteria for marking the diagram	
Criteria	**Marks**
Caption (**C**)	1
Correct diagram (**D**)	1
Any TWO correct labels (**L**)	2

(4)
(16)

2.4 2.4.1 Progesterone ✓ (1)

2.4.2 Graafian (follicle) ✓ (1)

2.4.3
- As the corpus luteum degenerated ✓/shrinks
- the progesterone levels decreased to the end of 28 days ✓/after day 21 (2)

2.4.4
- corpus luteum disintegrates ✓
- progesterone levels drop ✓
- causing the endometrium breaks down ✓/sheds/is no longer maintained
- and menstruation occurs ✓ (4)

(8)

2.5 2.5.1 (a) Cerebellum ✓ (1)

(b) Cerebrum ✓ (1)

2.5.2
- The ossicles/structures at **A** will not be able to vibrate. ✓
- No/less amplification of the vibrations can occur. ✓
- No/less vibrations will be passed on to the cochlea. ✓ **(Not 'inner ear')**
- No/less pressure waves can be converted into impulses by the **organ of Corti** ✓**/hair cells**.
- No/less impulses will be sent to the **cerebrum** ✓ Any (5)

2.5.3
- The mucus will block the Eustachian tube. ✓
- Air cannot equalise pressure on both sides of the tympanic membrane ✓/causing imbalance in pressure.
- The uneven pressure could burst the **tympanic membrane** ✓ (3)

(10)
[50]

QUESTION 3

3.1 3.1.1 Cerebellum ✓ (1)

3.1.2 A ✓ - Cerebrum ✓ (2)

3.1.3
- Meninges✓
- Cranium (**NO MARK for 'skull'**)
- Cerebrospinal fluid

(Mark first ONE only) Any (1)

3.1.4
- The thyroid* gland will not be stimulated ✓
- to secrete thyroxine ✓
- Thyroxine levels will decrease ✓/remain low
- The basal metabolic rate ✓/ rate of respiration will decrease
- Leading to an increase in body mass/obesity* ✓/decrease in body temperature

(2* compulsory marks + any 1) (3)

3.1.5
- Receptor cells ✓
- in the carotid artery ✓/aorta is stimulated
- to send impulses to the medulla oblongata ✓ in the brain
- which then stimulates the heart to beat faster ✓
- and breathing muscles/(diaphragm and intercostal muscles) to contract more ✓
- This increases the rate and depth of breathing ✓
- More CO_2 is taken to and exhaled from the lungs ✓
- The CO_2 levels in the blood decrease ✓ and return to normal

Any (5)
(12)

3.2 3.2.1 Umbilical cord ✓ (1)

3.2.2 Diffusion ✓ (1)

3.2.3 Oestrogen ✓
Progesterone ✓
(Mark first ONE only) (1)

3.2.4
- The foetus will receive less nutrients ✓
- and therefore, have a lower birth mass ✓/physical under-development/mental underdevelopment/death

OR

- The foetus will receive less oxygen ✓
- and therefore, have a lower birth mass ✓/physical under-development/mental underdevelopment/death

OR

- Waste will accumulate ✓
- and it will affect the functioning of the foetus ✓/death

(Mark first ONE only) Any (1 x 2) (2)

3.2.5

Blood to the foetus/B	Blood away from the foetus/C
Contains high concentration of nutrients ✓/any example	Contains low concentration of nutrients ✓/any example
Contains no (metabolic) waste products ✓/urea	Contains high concentration of (metabolic) waste products ✓/ urea
Contains high concentration of oxygen ✓	Contains low concentration of oxygen ✓
Contains low concentration of carbon dioxide ✓	Contains high concentration of carbon dioxide ✓

(Mark first TWO only)
(Differences must correlate)
(One mark for table) (5)
(11)

3.3
- Receptors detect ✓ the high temperature and
- stimulate the hypothalamus ✓
- and send impulses to the **blood vessels of the skin**. ✓
- Blood vessels in the skin dilate ✓/vasodilation
- **More** blood flows to the **skin** ✓
- **More** heat is lost ✓ through radiation
- An impulse is sent to the sweat glands ✓
- Sweat glands become **more** active ✓/released more sweat
- **More** heat is lost (from the skin) through evaporation ✓ Any **(5)**

3.4 3.4.1 6 ✓ to 7 ✓ (2)

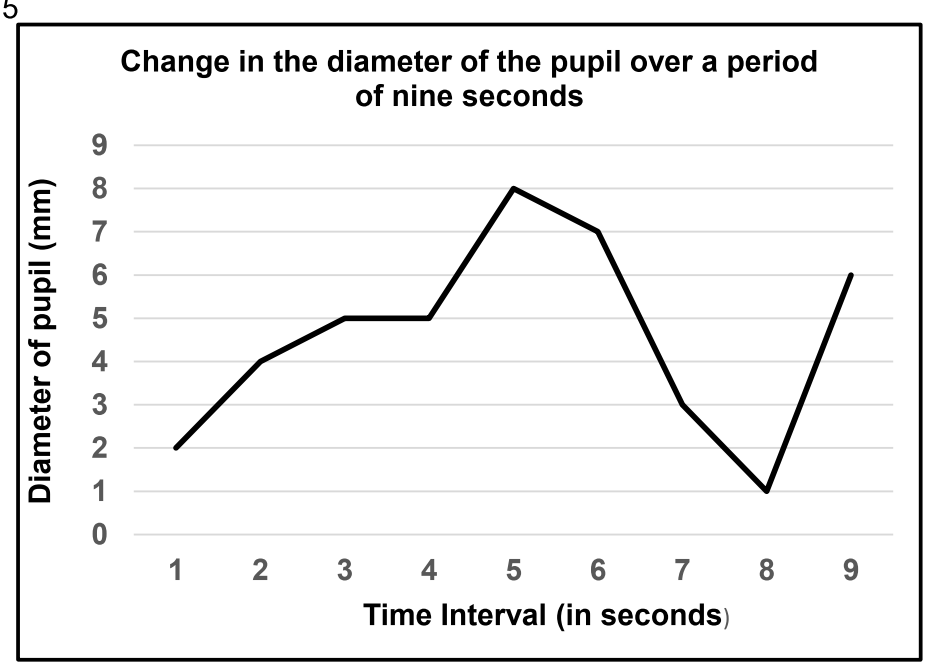
3.4.2
- Radial muscles of **iris** ✓ contract ✓
- Circular muscles ✓ of the iris relax ✓
- Pupil dilates ✓ (compulsory* 1 mark + any 3) (4)

3.4.3
- it is a quick **and** automatic/involuntarily response ✓
- to a light ✓ stimulus (2)

3.4.4
- Repeat the investigation ✓
- Use persons ✓ to sit in the dark Any (1)

(DO NOT ACCEPT 'CALCULATE THE AVERAGE')

3.4.5



Criteria for marking of the graph:

Criteria	Elaboration	Mark
Correct type of graph (**T**)	Line graph drawn	1
Caption of graph (**C**)	Both variables included	1
Axes labels (**L**)	**X-** and **Y**-axis correctly labelled and correct units for both axis	1
Scale for X-axis and Y-axis **(S)**	Correct scale for both axis	1
Plotting (**P**) **1 - 4** co-ordinates plotted correctly **All 5** co-ordinates plotted correctly		 1 2

(6)
(15)

3.5 3.5.1 Phototropism ✓ (1)

3.5.2 Auxins ✓ (1)

3.5.3
- (Shoot) **C** bends towards the light ✓/stimulus/shows positive phototropism
- as it is exposed to unilateral light ✓/light from one side/left side.
- The auxins in the tip move away from the light side ✓/to the darker side/shaded side/right side.
- The higher concentration of auxins on the dark side ✓/shaded side/right side
- stimulates growth. ✓ Any (4)

3.5.4
- (Since the apical bud was removed) no auxins are produced in the tips. ✓
- Growth of lateral buds/branches is not inhibited. ✓ (2)

(8)

[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150