



Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Departement van Onderwys
Porafensie Ya Kapa Botjhabela: Lefapha la Thuto

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2025

LIFE SCIENCES P1 MARKING GUIDELINE

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**
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 provincial memo discussion meeting.

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**
Candidates will lose marks. Marking guideline 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.

SECTION A

QUESTION 1

- 1.1.1 B ✓✓
- 1.1.2 A ✓✓
- 1.1.3 B ✓✓
- 1.1.4 D ✓✓
- 1.1.5 C ✓✓
- 1.1.6 C ✓✓
- 1.1.7 B ✓✓
- 1.1.8 D ✓✓
- 1.1.9 A ✓✓
- 1.1.10 B ✓✓ (10 x 2) (20)
- 1.2.1 Puberty ✓
- 1.2.2 Thorns ✓
- 1.2.3 (Reproductive) strategy ✓
- 1.2.4 Binocular vision ✓
- 1.2.5 Testes ✓
- 1.2.6 Kidney ✓
- 1.2.7 Stimulus ✓
- 1.2.8 Chorion ✓
- 1.2.9 Multiple Sclerosis ✓ (9 x 1) (9)
- 1.3.1 Both A and B ✓✓
- 1.3.2 Both A and B ✓✓
- 1.3.3 None ✓✓ (3 x 2) (6)
- 1.4.1 (a) A ✓ – Prostate gland ✓ (2)
- (b) B ✓ – Epididymis ✓ (2)
- 1.4.2 - Penis/D deposits sperm directly into the female reproductive tract ✓ during ejaculation,
 - ensuring that sperm are closer to the egg cell ✓ for potential fertilisation.
(Mark first ONE only) (1 x 2) (2)
- 1.5.1 (a) Oviparous ✓ (1)
- (b) Allantois ✓ (1)
- 1.5.2 - The foetus obtains nutrients directly from the mothers' body ✓
 - The foetus is protected by the mother's body from the environment ✓
(Mark first TWO only) (2)

- 1.6.1 (a) TSH/Thyroid stimulating hormone ✓ (1)
- (b) Thyroid gland ✓ (1)
- (c) Negative feedback ✓ mechanism (1)
- 1.6.2 (a) Goitre ✓ (1)
- (b) Thyroxin ✓ (1)
- [50]**

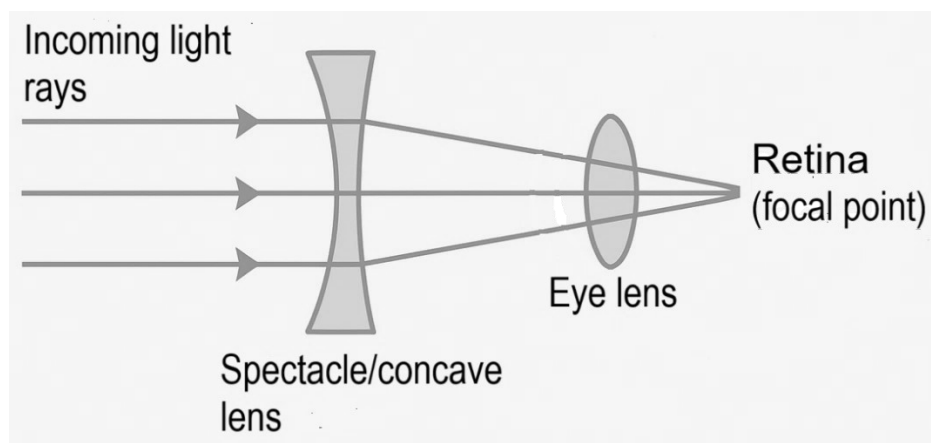
TOTAL SECTION A: 50

SECTION B

QUESTION 2

- 2.1 2.1.1 (a) A – Pinna ✓ (1)
- (b) D – Auditory nerve ✓ (1)
- 2.1.2 - The buildup of fluid in the middle ear increases pressure which reduces the ability of the tympanic membrane (structure E) to vibrate effectively ✓
As a result, fewer sound vibrations are transmitted to the ossicles (structure B) ✓
- The fluid also restricts the movement of the ossicles, reducing the ability to amplify sound ✓
This leads to less mechanical vibrations being passed on to the inner ear ✓resulting in the hearing loss. (4)
- 2.1.3 - Insert grommet✓ (into structure E) (1)
- 2.1.4 - The use of earplugs to prevent water entry to the middle ear ✓ (1)
- 2.1.5 The semi-circular canals / structure C:
- Are arranged at (right) angles of each other ✓
To detect movement in three different planes/ as endolymph is displaced in each receptor(s) are stimulated ✓
- Contain cristae and ampullae ✓
Detecting the speed of change in rotational movement of the head ✓
- Contain endolymph ✓
That is displaced with head movement/rotation causing the cupula to bend ✓
(Mark first TWO only) (2 x 2) (4)
- 2.2 2.2.1 Accommodation ✓ (1)
- 2.2.2 - Ciliary muscle relax ✓
- Suspensory ligaments are pulled taught ✓
- Tension on lens increases ✓
- Making the lens become flatter/less convex ✓
Light rays are refracted (bent) less ✓ (Any 4 x 1) (4)

2.2.3

**Marking guideline for drawing**

Correct lens shape (concave) - S	1 Mark
Incoming light rays - L	1 Mark
How the light rays are adjusted (bended) to focus correctly on the retina - B	1 Mark

(3)

- 2.3 2.3.1 - The path an impulse takes ✓ from
- receptor to effector ✓

(2)

- 2.3.2 - Transmits impulses ✓ from receptors to the brain ✓
- Transmits impulses ✓ from the brain to effectors ✓
- It helps coordinate muscle movements and balance ✓ by transmitting impulses between the brain and body. ✓
(Mark first ONE only) (Max 2)

(Any 1 x 2) (2)

2.3.3	B/ Sensory neuron	D/ Motor neuron
	Unipolar ✓	Multipolar ✓
	Enter the spinal cord via the dorsal root ✓	Exit spinal cord via ventral root ✓
	(Mark first TWO only)	

Table ✓+ (2 x 2) (5)

- 2.3.4 Synapse ✓*
- It ensures that the impulse moves in one direction only ✓
 - It prevents continuous stimulation of the neurons ✓
 - It ensures that the impulse is transmitted from the sensory neuron to the motor neuron
- (Mark first TWO only and ✓*)**

(3)

- 2.4 2.4.1 Autonomic nervous system ✓ (1)
- 2.4.2 - Sympathetic nerve
Increase cardiac rhythm ✓ increasing ✓ blood flow around the body
- Parasympathetic
Returning ✓ cardiac rhythm back to normal ✓ operating conditions (4)
- 2.5 2.5.1 Aldosterone ✓ (1)
- 2.5.2 $\frac{83}{360} \checkmark \times 2\,600 \checkmark = 599,44 \checkmark \text{ cm}^3$ (3)
- 2.5.3 - ADH will travel in the blood to the kidneys/nephron ✓
- Causing an increase in permeability ✓
- Within the collecting ducts/nephron ✓
- More water is absorbed from the filtrate ✓
- Less water is expelled through the urine ✓ (Any 4 x 1) (4)
- 2.5.4 (a) Cold day ✓ (1)
- (b) - High volume of urine produced ✓*
During a cold day, the body sweats less and produces more, urine to remove extra water ✓
- Little sweat is being produced ✓*
During a cold day, the body does not need to cool down, so less sweat is produced ✓
(Mark FIRST TWO only) (2 x 2) (4)
- [50]**

QUESTION 3

3.1 3.1.1 (a) Implantation ✓ (1)

(b) Morula ✓ (1)

- 3.1.2 - Facilitate the movement of sperm cells, egg cells and the zygote to the uterus ✓/produce peristaltic movements to facilitate movements of sperm, egg and zygote/ to catch and usher ovum into Fallopian tube
- Site of fertilisation ✓
 - To keep sperm cells, egg cells and the zygote hydrated ✓/ provides a suitable environment/nourishment for the fertilized ovum (zygote) before it moves to the uterus. (Any 2)

OR

- Helps sperm reach the ovum ✓ for fertilisation ✓
- To keep sperm cells, egg cells and the zygote hydrated ✓/ provides a suitable environment/nourishment for the fertilized ovum (zygote) before it moves to the uterus. (Any 2) (2)

- 3.1.3 - The hormones, estrogen and progesterone ✓* cause the endometrium to become
- more vascular ✓
 - more glandular
- increasing the endometrium lining size – more glandular ✓
(Mark ✓* + Any 1 only) (2)

- 3.1.4 - Nutrition ✓
It allows for diffusion of nutrients from the mother to the foetus ✓
- Gaseous exchange ✓
Diffusion of oxygen from the mother to the foetus and for the diffusion of carbon dioxide from the foetus to the mother ✓
 - diffusion of waste products and nutrients ✓
from the foetus to the mother ✓
 - Endocrine function ✓
After 12 weeks, the placenta secretes progesterone to maintain the pregnancy ✓
 - Acts as a microfilter ✓
Preventing pathogenic microbes and certain toxins from entering into foetal blood.
- (Mark first THREE only)** (3 x 2) (6)

- 3.1.5 - Limited nutrition, ✓ the developing foetus will not be able to receive enough nutrients and oxygen ✓
 - Toxicity ✓ might build up in the foetus as there will be limited removal of metabolic waste products ✓
(Mark first TWO only) (2 x 2) (4)
- 3.2 3.2.1 Pituitary/hypophysis ✓ gland (1)
- 3.2.2 Clomiphene treatment ✓ (1)
- 3.2.3 - Day 10/11 ✓ (1)
- 3.2.4 - FSH cause the development of mature Graafian follicle. ✓
 - As a Graafian follicle grows, it secretes more oestrogen. ✓
 - Therefore, rising oestrogen levels indicate that FSH is active and functioning. ✓ (2)
- 3.2.5 - Acquiring research tools/instruments ✓ to collect data with
 - Deciding on how data will be recorded ✓ (2)
- 3.2.6 - Allowing researchers to identify trends ✓
 - Reduces effects of random errors ✓ /outliers
 - Improves accuracy of results ✓ (Any TWO) (2)
- 3.2.7 (a) The release of a (mature) ovum ✓ from the ovary/mature Graafian follicle ✓ (2)
- (b) - Oestrogen levels peaked/drastically increased twice, ✓
 - Once at day 10 and the other at day 20 ✓
 - Oestrogen is secreted from developing follicles ✓ and
 - the greater the size of the Graafian follicle, the greater amount of oestrogen secreted ✓
 - Oestrogen levels usually spike the day before ovulation, it spiked twice within 27 days. ✓ (Any FOUR) (4)
- 3.3 3.3.1 - Decreased water availability/drought ✓
 - Parasitism ✓
 - Decreased light intensity ✓
 - Coldness ✓
 - Increased transpiration ✓ (Any ONE) (1)
- 3.3.2 - Inhibits plant growth in unfavourable conditions ✓
 - Preventing the plant from expending energy where it might not be able to photosynthesise efficiently. ✓ (2)

3.3.3 Spring / Summer ✓ (1)

- 3.3.4 - Higher UV radiation will be available, plants will be able to photosynthesise better ✓
 - GA stimulates cell elongation/plant growth/flowering to harness increased environmental energy ✓ (2)

3.4 In seedling A

- Auxins produced in the apical meristem
- Could not detect light direction ✓
- And remained evenly distributed ✓
- Causing the seedling to grow upwards ✓ (Any TWO) (2)

In seedling C

- Auxins produced in the apical meristem
- Where unevenly distributed ✓
- Accumulating on the left-hand side, causing cell elongation ✓
- Causing the seedling to bend towards the right ✓ (Any TWO) (2)

3.5 3.5.1 When insulin doesn't work properly, brain cells struggle to communicate, leading to memory problems. ✓✓ (2)

- 3.5.2 - amyloid plaques ✓
 - tau tangles ✓ (2)

- 3.5.3 - Insulin will stimulate liver / hepatic / muscle cells ✓
 - To convert excess glucose to glycogen ✓ which is stored in them (2)

- 3.5.4 - Insulin Resistance ✓

OR

- The body being unable to convert glucose to glycogen ✓ despite the secretion of insulin into the blood (1)

- 3.5.5 - Adrenalin ✓
 - Could cause an increase in cellular respiration within cells, thus uptake of glucose ✓ (2)
[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150