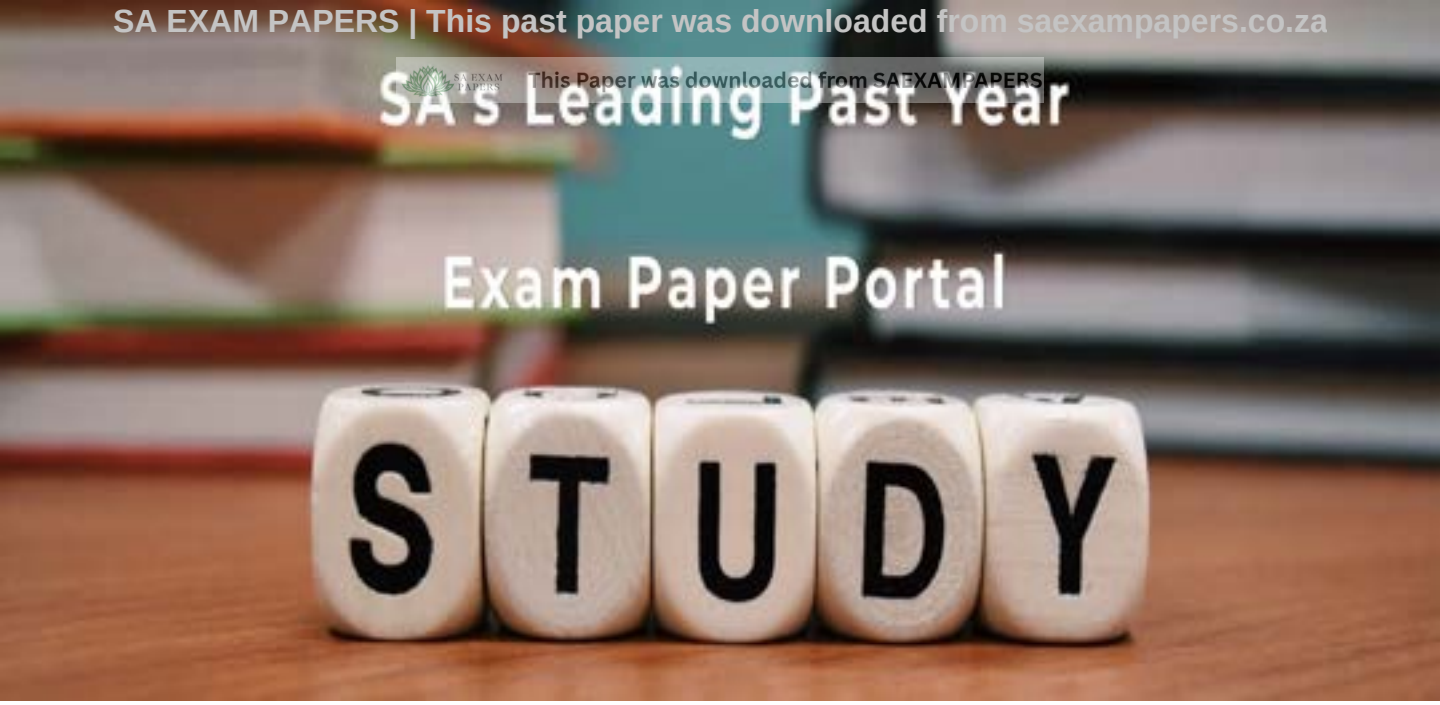


Province of the
EASTERN CAPE
EDUCATION

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

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2025

LIFE SCIENCES P1
AMENDED
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/D ✓✓		
1.1.6	C ✓✓		
1.1.7	B ✓✓		
1.1.8	D/A✓✓		
1.1.9	A ✓✓		
1.1.10	B ✓✓	(10 x 2)	(20)

1.2.1	Puberty ✓		
1.2.2	Thorns ✓ /spines/ trichomes /prickles		
1.2.3	(Reproductive) strategies ✓		
1.2.4	Binocular vision ✓/stereoscopic 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	B only ✓✓/None		
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 ✓ /vagina during ejaculation ensuring that sperm are closer to the egg cell ✓ for fertilisation. **(Mark first ONE only)**	(1 x 2)	(2)
1.5.1	(a)	Oviparous ✓/ovoviviparous		(1)
	(b)	Allantois ✓		(1)
1.5.2	-	(The foetus) obtains nutrients/oxygen directly from the mother's body ✓/ placenta / placenta assists with removal of wastes		
	-	(The foetus) is protected by the mother's body from the harsh environment✓ /predators / desiccation		
	-	(The foetus) is kept in optimal environment ✓ / amniotic fluid protects from mechanical injury **(Mark first TWO only)**	Any	(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 leads to ...

- increased pressure in middle ear ✓
- (structure E/ Tympanic membrane and structure B/ ossicles) will not vibrate freely ✓/ not vibrate
- fewer /no vibrations will be carried to oval window ✓ /no vibrations
- There is less amplification ✓ of sound vibrations (4)

2.1.3 - (Insert) grommet✓ (into structure E) (1)

2.1.4 Question removed (see conversion table at the end of marking guidelines) ~~(1)~~

2.1.5 The semi-circular canals / structure C:

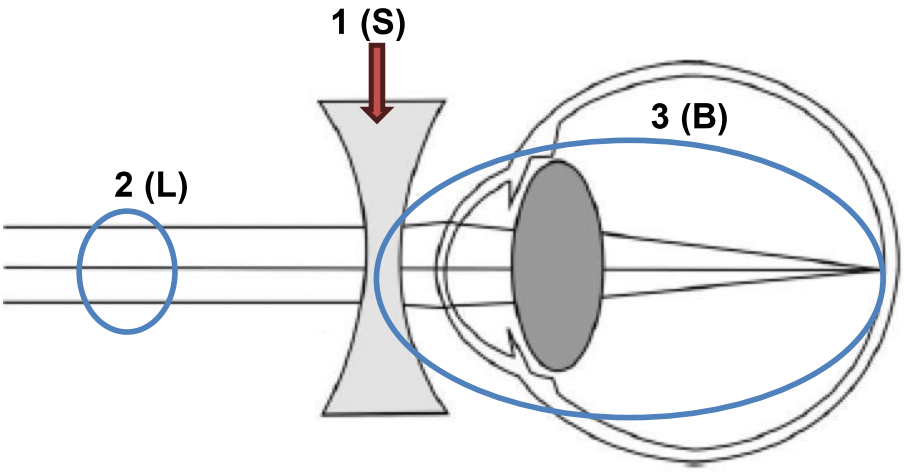
- Are arranged at (right) angles to each other ✓/ in different planes
  To detect movement of head in different directions✓
- Contain cristae ✓
  To detect the changes in speed and direction of the head ✓
- Contain fluid ✓/(endolymph)
  which stimulates receptors ✓

(Mark first TWO only) Any (2 x 2) (4)

2.2 2.2.1 Accommodation ✓ (1)

2.2.2
- Ciliary muscles relax ✓
- Suspensory ligaments are pulled taught ✓
- Tension on the lens increases ✓
- Making the lens to 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 are parallel - **L**	1 Mark
How the light rays are adjusted (bent) to focus correctly on the retina (diverging past the lens and converging on retina/ to a point) – **B**	1 Mark

(3)

2.3 2.3.1
- pathway along which an impulse is transmitted ✓
- to bring about a reflex action ✓

(2)

2.3.2
- Transmits impulses from the sensory neurons/ receptors ✓ to the brain ✓

OR

Transmits impulses from the brain ✓ to motor neurons /effectors ✓

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

2.3.3

B/ Sensory neuron	D/ Motor neuron
Shorter axon ✓	Longer axon ✓
Cell body in middle ✓	Cell body at one end ✓
Long dendrites ✓	Short dendrites ✓
Less axon terminals ✓	More axon terminals ✓

(Mark first TWO only) Table ✓ + Any 2 X 2 (5)

2.3.4 Synapse ✓*
- Ensures that the impulse moves in one direction only ✓
- Prevents continuous stimulation of the neurons ✓
- Ensures that the impulse is transmitted from the sensory neuron to the interneuron ✓/motor neuron

(Mark first TWO only) **Compulsory Mark ✓* + any 2** (3)

2.4 2.4.1 Autonomic ✓ nervous system (1)

2.4.2
- Sympathetic nerve
  Increase heart rate ✓ increasing blood flow around the body✓/ faster transport of oxygen to tissues
- Parasympathetic nerve
  decreases heart rate✓ to normal to maintain a resting state✓ (4)

2.5 2.5.1 Aldosterone ✓ (1)

2.5.2 $\frac{83}{360}$ ✓ x 2 600 ✓ = 599,44 ✓ cm^3 (3)

2.5.3
- Increased levels of ADH✓
- Increase permeability✓
- In the renal tubules✓/ collecting duct and distal convoluted tubules
- More water is reabsorbed✓ into the blood capillaries✓
- Less water is lost through the urine✓ Any (4)

2.5.4 (a) Cold day ✓/ Hot day (1)

(b) Answer must be reason for answer in 2.5.4 (a)

Cold day
- Less sweat is produced ✓
  As sweat is not needed to cool down body ✓

- High volume of urine produced ✓
  As less water is lost as sweat ✓

(Mark FIRST TWO only)

OR

Hot day
- Sweat glands are more active ✓
- More sweat is produced ✓
- More evaporation of heat
  to cool down body (4)

[50]

QUESTION 3

3.1 3.1.1 (a) Implantation ✓ (1)

(b) Morula ✓ (1)

3.1.2
- Provides a passage for sperm cells to the ovum✓
- Site for fertilisation ✓
- To keep sperm cells, egg cells and the zygote hydrated ✓/ provides a suitable environment/nourishment for the fertilized ovum (zygote)
- Moves the ovum towards the uterus

Any (2)

(Mark first TWO only)

3.1.3
- Increase in ovarian hormones ✓ /oestrogen and progesterone
- cause the endometrium to become more vascular ✓/more glandular (2)

3.1.4
- It allows for diffusion of nutrients ✓ from the mother to the foetus ✓
- Diffusion of oxygen ✓ from the mother to the foetus ✓
- Diffusion of carbon dioxide ✓ from the foetus to the mother ✓
- Diffusion/excretion of waste products ✓ from the foetus to the mother ✓
- After 12 weeks, the placenta secretes progesterone ✓ to maintain the pregnancy ✓
- Prevents pathogenic microbes and certain toxins ✓ from entering into foetal blood ✓
- Serves as attachment of foetus to mother ✓ to ensure survival of the foetus ✓

(Mark first THREE only) (3 x 2) (6)

3.1.5
- Limited nutrition✓ will result in the foetus not developing fully✓
- Limited oxygen ✓ will limit cellular respiration ✓ needed for growth
- 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)

NB – the word "foetus" may be interchanged with "embryo" in this question, but "baby" is not accepted

3.2 3.2.1 Pituitary ✓ gland/ hypophysis (1)

3.2.2 Clomiphene ✓ treatment (1)

3.2.3 - Day 11 ✓ (accept Day 10-12) (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
- Collecting equipment ✓/instruments required
- Deciding on how data will be recorded ✓
- Decide how to measure fertility ✓
- Decide on the time of day to measure fertility ✓
- Decide on the time of day to take the treatment ✓

(Mark first TWO only) Any (2)

3.2.6
- It is a larger sample size ✓
- For consistent results ✓
- Reduces effects of random errors ✓ /outliers Any (2)

3.2.7 (a) The release of a (mature) ovum ✓ from the ovary/mature Graafian follicle ✓ (2)

(b) Question removed (see conversion table at the end of marking guidelines) ~~(4)~~

3.3 3.3.1 - Question removed (see conversion table at the end of marking guidelines) ~~(1)~~

3.3.2
- Inhibits plant growth in unfavorable conditions ✓/promotes dormancy
- Preventing the plant from using energy where it might not be able to photosynthesise efficiently. ✓ /protect plant parts from damage (2)

3.3.3 Spring / Summer ✓ (1)

3.3.4 - Higher UV radiation/warmer conditions ✓

- allows plants to photosynthesise better ✓/germinate/grow/flower (2)

3.4

In seedling A

- Auxins were not exposed to light ✓
- and remained evenly distributed ✓
- Causing the seedling to grow straight upwards ✓ Max 2

In seedling C

- The stem was exposed to unilateral light ✓
- Auxin moved to the dark side ✓ /left hand side
- Causing the seedling to bend towards the right ✓/light/more cell elongation on the left/dark side

Max 2 (4)

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 increases the absorption/usage of glucose by cells ✓
- stimulates liver/ muscle cells to convert excess glucose to glycogen ✓ (2)

3.5.4 - Insulin Resistance ✓
- Inability of the pancreas to produce insulin
- Inability of the liver/muscle cells to convert glucose to glycogen ✓ Any (1)

(Mark first ONE only)

3.5.5 - Adrenalin ✓
causes an increase in cellular respiration within cells ✓ (2)

[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150

CONVERSION TABLE

ORIGINAL MARK /144	MARKS TO BE ADDED
0 – 11	+0
12 – 34	+1
35 – 58	+2
59 – 82	+3
83 – 106	+4
107- 130	+5
131– 154	+6