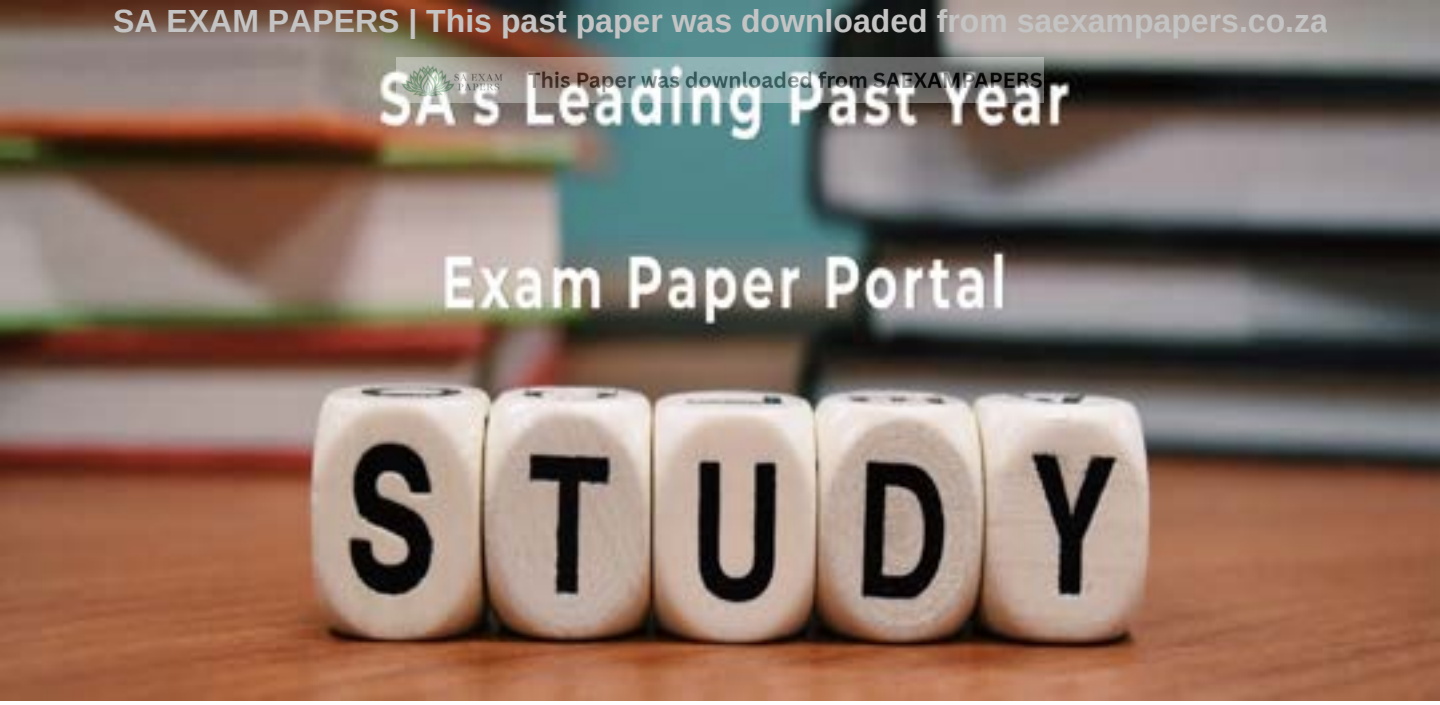


FINAL

KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

LIFE SCIENCES P1

PREPARATORY EXAMINATION

SEPTEMBER 2025

MARKING GUIDELINE

MARKS: 150

This memorandum consists of 10 pages

PRINCIPLES RELATED TO MARKING LIFE SCIENCES SEPTEMBER 2024

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 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 is incorrect, do not credit. If sequence and links becomes correct again, resume credit.

9. **Non-recognised abbreviations**
   Accept if first defined in answer. If not defined, do not credit the unrecognized 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

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, 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 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 1.1.1 C✓✓
1.1.2 C✓✓
1.1.3 C✓✓
1.1.4 C✓✓
1.1.5 A✓✓/ D
1.1.6 No answer
1.1.7 B✓✓
1.1.8 C✓✓
1.1.9 C✓✓
1.1.10 C✓✓

(10 x 2) **(20)**

CONVERSION TABLE FOR 1.1	
CANDIDATE MARK	**ADJUSTMENT**
0 - 4	No mark (0)
6 - 12	+1 mark
14 - 18	+ 2 marks

1.2 1.2.1 Epididymis✓
1.2.2 Tropism✓
1.2.3 Meninges✓
1.2.4 Endocrine✓
1.2.5 Choroid✓
1.2.6 Apical dominance✓
1.2.7 Accommodation✓
1.2.8 Multiple sclerosis✓
1.2.9 Parasympathetic✓

(9 x 1) **(9)**

1.3 1.3.1 B only✓✓
1.3.2 B only✓✓
1.3.3 B only✓✓

(3 x 2) **(6)**

1.4 1.4.1 (a) E✓ - Eustachian tube✓ (2)

(b) A✓ - Tympanic membrane✓/ eardrum (2)

(c) B✓ - Semi-circular canal✓/ ampulla (2)

(d) F✓ - Round window✓ (2)

	1.4.2	Organ of Corti✓		(1)
				(9)
1.5	1.5.1	(a) Pituitary gland✓/ Hypophysis		(1)
		(b) Cerebrum✓		(1)
		(c) Corpus callosum✓		(1)
	1.5.2	(a) D✓		(1)
		(b) B✓		(1)
		(c) E✓		(1)
				(6)
		TOTAL SECTION A:		**50**

SECTION B

QUESTION 2

2.1	2.1.1	(a) External✓ fertilisation		(1)
		(b) Precocial✓		(1)
	2.1.2	Eggs are fertilised outside the female's body✓ **(Mark first ONE only)**		(1)
	2.1.3	- Eggs are deposited in the male's pouch✓ - Sperms are released into the same pouch with the eggs✓ **(Mark first ONE only)**	Any	(1)
	2.1.4	- Offspring are protected from predators✓ and are - born fully developed✓ - ensuring their survival✓ **(Mark first ONE only)**	Any	(2) **(6)**
2.2	2.2.1	Pupillary✓ mechanism		(1)
	2.2.2	**X**✓		(1)
	2.2.3	- Circular muscles (of the iris) relax✓ - Radial muscles (of the iris) contract✓ - Pupil size increases✓/ wide/ dilate	Any	(3) **(5)**
2.3	2.3.1	(a) Amniotic fluid✓		(1)
		(b) Cervix✓		(1)

2.3.2
- Protects the foetus against dehydration✓
- Acts as a shock absorber✓ / Protects foetus against physical injuries
- Maintains temperature for the foetus✓
- Allows free foetal movement✓ Any (2)

(Mark first TWO only)

2.3.3 (a)
- Produces antibodies✓
- that provides immunity✓ for the foetus
- Serves as a micro-filter✓
- by preventing pathogenic bacteria from entering the foetus✓ (4)

(Mark first TWO only)

(b)
- To allow transport of oxygen✓
- and nutrients from mother to foetus✓
- To allow transport of carbon dioxide
- and waste from foetus to the mother✓ (4)

(12)

2.4 2.4.1 (a) Progesterone✓ (1)

(b) Oestrogen✓ (1)

2.4.2
- Y/ oestrogen level decreased after day 12
- indicating that matured follicle has ruptured

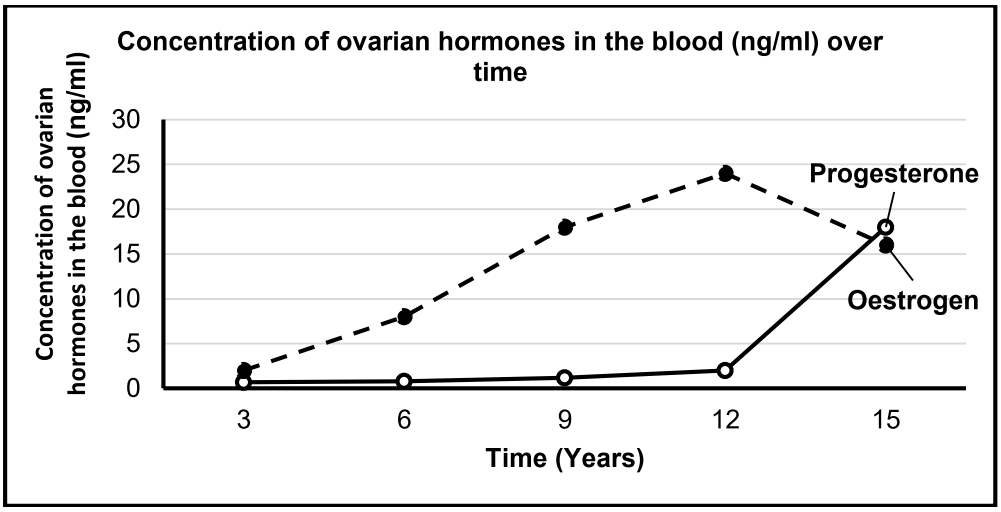
OR

- X/ progesterone level increased after day 12
- indicating that corpus luteum has been formed (2)

2.4.3
- Endometrium will thicken✓
- Becoming more glandular✓
- And vascular✓ Any (2)

2.4.4
- To further thicken the endometrium✓
- to maintain pregnancy✓
- And to inhibit pituitary gland✓
- from producing FSH✓
- So that no new follicle develops✓ Any (3)

2.4.5



Guideline for assessing graph

Criteria	Mark
Line graph is drawn **(T)**	1
Caption of the graph includes both variables **(C)**	1
Correct labels on the X and Y axes with units with correct unit on the Y-axis **(L)**	1
Correct scale for X and Y-axes **(S)**	1
Plotting **(P)** correctly done for: 1 to 9 All points correctly plotted	1 2

(6)
(13)

2.5 2.5.1 30 minutes✓ (1)

2.5.2 350- 250✓mg /100 mL
= 100✓ mg / mL (2)

2.5.3
- Pancreas will release less/ no insulin✓
- to convert excess glucose into glycogen✓

- There was no stimulation of muscle cells✓/ liver
- to absorb excess glucose✓ Any (2)

2.5.4
- Blood glucose concentration decreased✓
- from 90 minutes to 120 minutes✓
- It remained the same✓/ constant
- from 120 minutes to 150 minutes✓ Any (3)

2.5.5
- Pancreas became stimulated✓
- and release more insulin✓ into the blood
- Insulin stimulates the conversion of excess glucose into glycogen✓
- which is stored in the liver✓/ muscles
- and increases the absorption of glucose into the cells✓
- Thereby decreasing the blood glucose levels back to normal✓ Any (4)

(12)
[50]

QUESTION 3

3.1 3.1.1 Adrenal✓ gland (1)

3.1.2
- It is injected directly into the blood✓
- to reach the target organ faster✓ (2)

3.1.3
- Allowing more blood flow to the muscles✓
- with glucose and oxygen✓
- to increase metabolic rate✓/ respiration
- for more energy production✓ Any (2)

(5)

3.2 3.2.1 Geotropism✓or phototropism (1)

3.2.2
- Auxins will move to the lower side of the root✓
- in response to gravity✓
- The lower side of the root will have higher concentration of auxins✓
- that will inhibit its growth✓
- and more cell elongation on the upper side✓
- causing it to grow faster✓
- Root will bend downward✓ Any (5)

3.2.3
- Root and stem will grow horizontally✓
- since auxins will be equally distributed
- and there will be equally cell elongation✓
- causing even growth✓ Any (3)

(9)

3.3 3.3.1
- Pinna trapped the sound waves✓
- The auditory canal directs the sound waves to the tympanic membrane✓
- causing the tympanic membrane to vibrate✓
- which causes the ossicles to vibrate✓ and
- pass the vibrations to the oval window✓ to vibrate
- (Pressure) waves are set up in the inner ear
- The organ of Corti is stimulated✓in the cochlea
- And convert the stimuli into impulses
- Which are impulse transmitted by the auditory nerve✓
- To the cerebrum✓ for interpretation

Any (7)

3.3.2

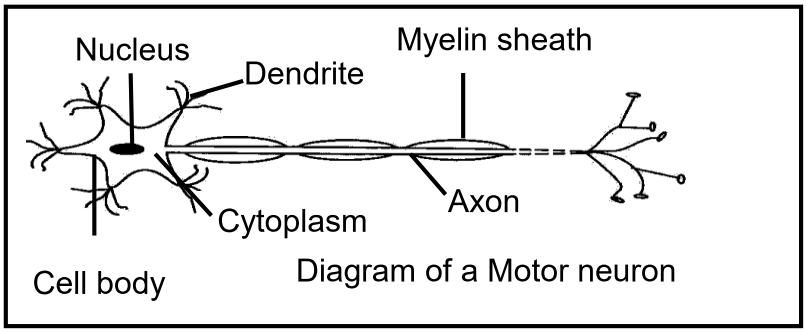


Diagram of a Motor neuron

CRITERIA	MARK / S
Caption (Must include Motor neuron) **(C)**	1
Correct drawing **(D)**	1
Any TWO correct labels **(L)**	2

(4)

3.3.3
- Impulse is conducted from the receptor✓
- through the sensory neuron✓and the
- synapse✓ to the
- connector neuron✓
- and to the motor neuron✓ and to
- the foot muscle✓

Any (5)
(16)

3.4 3.4.1 Maintenance of a constant internal environment,✓ regardless of changes in the environment✓ (2)

3.4.2 **Y**✓ (1)

3.4.3 - Blood capillaries are dilated✓
- Sweat✓ on the surface of the skin (2)

3.4.4
- **A**/ Blood vessels constrict✓/ vasoconstriction
- And less blood flows to the skin✓
- Less/ no sweat✓ produced by sweat glands
- Resulting in less heat lost to the environment✓ Any (3)

(8)

3.5 3.5.1 Male fertility✓ (1)

3.5.2 By calculating the average sperm count per volunteer✓ (1)

3.5.3 (a)
- Healthy male volunteers were used✓
- Similar type of clothing were used✓
- Same period of time for the investigation✓for all volunteers
- Same dosage of contraceptive pill were used✓ Any (2)

(Mark first TWO only)

(b)
- 600 males used✓
- Repeated weekly over a 24 month period✓ (2)

(Mark first TWO only)

3.5.4
- Spermatogenesis cannot occur✓
- and no sperm production ✓
- Leading to infertility✓ in men (3)

3.5.5
- To determine if the pill is still effective after 12 months✓
- To see if the sperm count returns to normal✓
- To ensure that no side effects develop✓ / health problems Any (1)

(Mark first ONE only)

3.5.6
- The low number of sperm cells in the semen✓
- which decreases the chances of fertilisation✓/ results with infertility (2)

(12)
[50]

TOTAL SECTION B: 100

GRAND TOTAL: 150