

FINAL!



KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

LIFE SCIENCES P1

PREPARATORY EXAMINATION

MARKING GUIDELINES - SEPTEMBER 2023

Stanmorephysics.com

MARKS: 150

This marking guideline consists of 9 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 national 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. 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.

SECTION A

QUESTION 1

1.1	1.1.1	B✓✓		
	1.1.2	B✓✓		
	1.1.3	A✓✓		
	1.1.4	C✓✓		
	1.1.5	A✓✓		
	1.1.6	D✓✓		
	1.1.7	B✓✓		
	1.1.8	C✓✓		
	1.1.9	D✓✓	(9 x 2)	(18)
1.2	1.2.1	Maculae✓		
	1.2.2	Abscisic acid✓		
	1.2.3	Synapse✓		
	1.2.4	Tropism✓		
	1.2.5	Apical dominance✓		
	1.2.6	Reflex action✓		
	1.2.7	Cones✓		
	1.2.8	Hypothalamus✓		
	1.2.9	Vasodilation✓		(9)
1.3	1.3.1	None✓✓		(2)
	1.3.2	Both A and B✓✓		(2)
	1.3.3	A only✓✓		(2)
				(6)
1.4	1.4.1	Sensory neuron✓		
	1.4.2	(a) Nucleus✓		(1)
		(b) Cell body✓		(1)
		(c) Dendrites✓		(1)
	1.4.3	(a) Carry impulses away from the cell body✓ (Mark first ONE only)		(1)
		(b) - Insulates the axon✓ - Speeds up the transmission of impulses✓ (Mark first ONE only)	Any	(1)
	1.4.4	Y to X✓		(1)
				(7)



- 1.5 1.5.1 (a) Semi-circular canals✓ (1)
(b) Ossicles✓ (1)
(c) Auditory nerve✓ (1)
- 1.5.2 Grommet✓ (1)
- 1.5.3 B✓ (1)
- 1.5.4 (a) - It equalises pressure on either side of the tympanic membrane✓ (1)
- 1.5.4 (b) - Traps sound waves✓
- and direct them into the auditory canal✓ Any (1)
- 1.5.5 Cristae✓ (1)
- 1.5.6 F✓ - Cochlea✓ (2)
- (10)**

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SECTION B

QUESTION 2

- 2.1 2.1.1 (a) LH✓ (1)
- 2.1.1 (b) Progesterone✓ (1)
- 2.1.2 Oestrogen✓ (1)
- 2.1.3 - A Graafian follicle will not be stimulated✓
 - No ova will be released ✓/ovulation will not occur
 - therefore, a woman will not be able to reproduce✓/fertilization will not occur. Any (3)
- 2.1.4 - Hormone Y/Progesterone levels✓
 - start to decrease✓
 - due to the corpus luteum disintegrating✓ Any (3)
- (9)**
- 2.2 2.2.1 Adrenal✓ gland (1)
- 2.2.2 (a) Aldosterone✓ (1)
- 2.2.2 (b) Adrenalin✓ (1)
- 2.2.3 $[(1 - 0,5) \div 0,5] \times 100 = 100\%$ ✓ (3)
- 2.2.4 - Increased salt concentration in the blood✓
 - decreases the secretion of aldosterone✓
 - This causes less salt to be reabsorbed✓/more salt to be excreted
 - which reduces water reabsorption✓
 - More water remains in the renal tubules ✓
 - resulting in more urine formed✓ Any (5)
- 2.2.5 - High aldosterone levels✓ in the blood
 - Will cause a high reabsorption of salt✓ into the blood
 - Causing more water to be reabsorbed✓ into the blood
 - Resulting in low volume of urine✓ Any (3)
- (14)**
- 2.3 2.3.1 Accommodation✓ (1)
- 2.3.2 B✓ and D✓ (2)
- (Mark the FIRST TWO only)**
- 2.3.3 - Circular muscles relax✓
 - Radial muscles contract✓
 - The pupil size increases✓
 - More light enters the eye✓ (4)



- 2.3.4 B✓ (1)
- 2.3.5 Astigmatism✓ (1)
- 2.3.6 - Wearing glasses with a corrective lenses✓ or lens.
 - Laser surgery✓ Any (1)
- (Mark the FIRST ONE only)** (10)
- 2.4 2.4.1  (a) Corpus callosum✓ (1)
- (b) Pituitary gland✓ (1)
- (c) Spinal cord✓ (1)
- 2.4.2 - Control voluntary actions✓
 - Responsible for higher thought processes✓ (memory, judgement etc)
 - Interprets sensations✓ (any correct example) (3)
- (Mark the FIRST THREE only)**
- 2.4.3 - Cerebellum receives impulses✓
 - from the receptors in the ear✓/cristae and maculae
 - via the auditory nerve✓
 - Cerebellum sends impulses to the skeletal muscles✓
 - to restore balance✓ (3)
- 2.4.4 - Part E is responsible for breathing✓
 - Breathing would stop✓
 - resulting in death✓
- OR**
- Part E is responsible for heart beat✓
 - Causing the heart to stop✓
 - Resulting in death✓ Any (2)
- 2.4.5 - It is protected by meninges✓ against friction
 - Kept moist by the cerebrospinal fluid✓ Any (1)
- (Mark the FIRST ONE only)** (12)
- 2.5 - The autonomic nervous system is made up of two branches/double innervation that work antagonistically✓,
 - the sympathetic nervous system✓
 - stimulates the involuntary processes✓ and
 - the parasympathetic nervous system✓
 - inhibits involuntary processes✓  (5)
- [50]**

QUESTION 3

- 3.1 3.1.1 (a) Chorion✓ (1)
- (b) Cervix✓ (1)
- 3.1.2  - Keeps foetus hydrated✓
 - Keeps foetus within small temperature changes✓
 - Acts as shock absorber✓/prevents mechanical injury
 - Allows free foetal movements✓ Any (2)
(Mark the FIRST TWO only)
- 3.1.3 - Nitrogenous waste will not be excreted✓
 - and will accumulate in the foetus✓
 - resulting in slow/under development✓/death of the foetus
OR
 - Oxygen and nutrients will not reach the foetus✓
 - leading to poor/no development✓/suffocation
 - leading to death of the foetus✓ (3)
- 3.1.4 - Excretory✓
 - Digestive✓
 - Respiratory✓/gaseous exchange
 - Immune✓ system Any (2)
(Mark the FIRST TWO only)
- 3.1.5 - A diploid zygote is formed✓
 - and it divides by mitosis✓
 - to form a ball of cells✓
 - called a morula✓
 - which further divides by mitosis✓
 - to form a hollow ball of cells✓
 - called a blastocyst✓ Any (5)
(14)
- 3.2 - Diploid 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✓. Any (4)
- 3.3 3.3.1 (a) Testosterone levels✓ (1)
- (b) Age✓ (1)
- 3.3.2  - Ask for permission for volunteers to participate✓
 - Decide on the date, time and venue✓
 - Decide on the sample size✓
 - Decide on the age groups to use✓
 - Decide on the method for recording the results✓
 - Decide on the duration of the investigation✓ Any (3)
(Mark the FIRST THREE only)

- 3.3.3 25 – 29✓ (1)
- 3.3.4 - Equal number of males per age group✓
- All males were of the same health status✓
- All males were on the same diet✓
- Same interval of blood tests✓
- Same duration of the investigation✓ Any (3)
- (Mark the FIRST THREE only)**
- 3.3.5 - Blood testosterone increases from 20 to 29 years✓ (accept if ranges are given)
- after which it decreases steadily with age✓ (2)
- 3.3.6 - Decrease in testosterone levels✓
- which will result in low sperm count✓/ decreased sexual urges
- therefore, causing decreased reproduction✓/infertility Any (3)
- (14)**
- 3.4 3.4.1 - Blood glucose level increases✓
- Pancreas is stimulated✓
- More insulin is secreted✓ into the blood
- Which is sent to the liver✓ and muscles
- To convert excess glucose✓ into glycogen✓
- And glucose level in the blood decreases✓ Any (5)
- 3.4.2 Diabetes mellitus✓ (1)
- 3.4.3 - High thyroxin levels increase metabolic rate✓/cellular respiration
- This results in more glucose and fats being burnt✓/broken down
- Resulting in weight loss✓ (3)
- 3.4.4 Thyroid gland✓ (1)
- (10)**



- 3.5 3.5.1 Internal fertilisation✓ (1)
- 3.5.2 - Sperms are deposited inside the female body✓
which increases the chances of fertilisation✓
- Protection provided by the mother's body✓
decreases mortality rate✓ (2 × 2) (4)
(Mark the FIRST TWO only)
- 3.5.3  Ovipary✓ (1)
- 3.5.4 - Removes the debris from the egg✓
- Assist the hatchling to the water✓
- Opens the eggs carefully with her tongue✓
- Carries the hatchlings in her mouth✓ Any (2)
(Mark the FIRST TWO only) (8)
[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150

