

**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 Absciscic 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✓✓
  - 1.3.2 Both A and B✓✓
  - 1.3.3 A only✓✓
- (2)  
(2)  
(2)  
(6)
- 1.4
- 1.4.1 Sensory neuron✓
  - 1.4.2 (a) Nucleus✓
  - (b) Cell body✓
  - (c) Dendrites✓
  - 1.4.3 (a) Carry impulses away from the cell body✓  
(Mark first ONE only)
  - (b) - Insulates the axon✓  
- Speeds up the transmission of impulses✓  
(Mark first ONE only)
  - 1.4.4 Y to X✓
- (1)  
(1)  
(1)  
(1)  
(1)  
(1)  
(1)  
(7)
- Any

- 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)**

**50**





## SECTION B

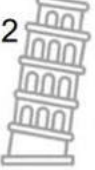

### QUESTION 2

- 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)
- (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**

