education

Department of Education
FREE STATE PROVINCE

# GRADE 12

# LIFE SCIENCES

## September 2025

## TOTAL: 150

# MARKING GUIDELINES
# (Final additions)

**These marking guidelines consist of 9 pages.**

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## PRINCIPLES OF MARKING LIFE SCIENCES

1. **If more information than the mark allocation is given**
   Stop marking after the maximum points have been obtained and draw a squiggly line indicating 'max' points in the right hand margin.

2. **If, for example, three reasons are required and five are given.**
   Mark only the first three regardless of whether all or some are correct/incorrect.

3. **If the whole process is described while only a part is required**
   Read everything and credit the relevant parts.

4. **If comparisons are required but descriptions are given**
   Accept if the differences/similarities are clear.

5. **If tabulation is required and paragraphs are given**
   Candidates will forfeit marks if not tabulated.

6. **If annotated diagrams are presented instead of descriptions required**
   Candidates will forfeit marks.

7. **If flowcharts are presented instead of descriptions**
   Candidates will forfeit marks.

8. **If the sequence is vague and links do not make sense**
   Credit where sequence and links are correct. Where sequence and links are not correct, do not credit. If the sequence is correct again, continue to credit.

9. **Unrecognized abbreviations**
   Accept if it is described at the beginning of the answer. If it is not defined, do not credit the unrecognized abbreviation, but credit the rest of the answer if it is correct.

10. **Wrongly numbered**
    If the answers match the correct order of the questions, they are acceptable.

11. **If the language used changes the intended meaning**
    Don't accept.

12. **Spelling errors**
    Accept if recognizable, provided it does not mean something else in Life Sciences or is out of context.

13. **If common names are given in terminology**
    Accept, if accepted at the memo discussion.

14. **If only letter is required and only the name is given (and vice versa)**
    No credit.




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15. **If units of measure are not indicated**
Candidates will forfeit marks. Memorandum will indicate separate points for units.

16. **Be sensitive to the meaning of the answer, which can sometimes be presented in different ways**

17. **Heading**
All illustrations (such as diagrams, drawings, graphs, tables, etc.) must be captioned.

18. **Mixing of official languages (terms and concepts)**
A single word or two in any other official language other than the learner's language of assessment in which most of his/her answers are presented must be credited, if correct. A marker proficient in the relevant official language should be consulted. This applies to all official languages.

## SECTION A

## QUESTION 1

| | | | | |
|---|---|---|---|---|
| 1.1 | 1.1.1 | A ✓✓ | | |
| | 1.1.2 | B ✓✓ | | |
| | 1.1.3 | B ✓✓ | | |
| | 1.1.4 | A ✓✓ | | |
| | 1.1.5 | B ✓✓ | | |
| | 1.1.6 | D ✓✓ | | |
| | 1.1.7 | A ✓✓ | | |
| | 1.1.8 | D ✓✓ | | |
| | 1.1.9 | C ✓✓ | | |
| | 1.1.10 | C ✓✓ | (10 x 2) | **(20)** |




| | | | | |
|---|---|---|---|---|
| 1.2 | 1.2.1 | Negative feedback ✓ | | |
| | 1.2.2 | Exocrine ✓ glands | | |
| | 1.2.3 | Vasoconstriction✓ | | |
| | 1.2.4 | Synapse✓ / Synaptic gap /Synaptic cleft | | |
| | 1.2.5 | Gestation ✓ Not pregnancy X | | |
| | 1.2.6 | Fallopian tube ✓ /oviduct | | |
| | 1.2.7 | Geotropism ✓ | | |
| | 1.2.8 | Menstruation ✓ | | |
| | 1.2.9 | **Blastula** ✓/Blastocyst /BlactocyteX | (9 x1) | **(9)** |
| 1.3 | 1.3.1 | None ✓✓ | | |
| | 1.3.2 | A only ✓✓ | | |
| | 1.3.3 | B only ✓✓ | (3 x 2) | **(6)** |
| 1.4 | 1.4.1 | (a) Maculae ✓ | | (1) |
| | | (b) Ampulla ✓/ Semi-circular canals | | (1) |
| | | (c) Cerebellum ✓ | | (1) |
| | | | | **(3)** |
| 1.5 | 1.5.1 | (a) B✓ Corpus callosum✓ | | (2) |
| | | (b) A✓ Cerebrum✓ | | (2) |
| | | (c) D✓ Medulla Oblongata✓ | | (2) |
| | 1.5.2 | - Cranium✓ | | |
| | | - Meninges✓ | | |
| | | - Cerebrospinal fluid✓ | Any | (2) |
| | | **(Mark first TWO only)** | | **(8)** |
| 1.6 | 1.6.1 | Oogenesis ✓/ (Meiosis I and Meiosis II) | | (1) |
| | 1.6.2 | (a) Mitosis ✓ | | (1) |
| | | (b) 23✓ / Haploid | | (1) |
| | | (c) Fertilisation ✓ | | (1) |
| | | | | **(4)** |
| | | | **TOTAL SECTION A:** | **50** |

**SECTION B**
**QUESTION 2**

2.1 2.1.1 Tubal ligation ✓ (1)

2.1.2 - Two groups of 63 participants✓ / 126 participants.
- Conducted investigation over a period of 18 months✓ / 01 January 2019 to 30 June 2020
**(Mark first TWO only)** (2)

2.1.3 To serve as a control group ✓ / To ensure that tubal ligation was the only factor responsible for the menstrual irregularities (1)

2.1.4 -To ensure that tubal ligation was the only factor responsible for the menstrual irregularities✓
- therefore increasing the validity ✓of the investigation (2)

2.1.5 - Corpus luteum does not develop fully✓
- **Less** / No progesterone secreted✓
- **Low** levels of progesterone ✓
- Stimulates pituitary gland ✓
- to secrete **more** FSH ✓
- levels of FSH in the blood increases ✓ Any (5)

2.1.6 - Women who underwent tubal ligation, have more menstrual irregularities ✓✓

OR

- Women who did not undergo tubal ligation, have less / no menstrual irregularities ✓✓ (2)
**(13)**

2.2 2.2.1 A ✓ (1)

2.2.2 Nucleus ✓/ Head (1)

2.2.3 - Contains (many) mitochondria✓
- for cellular respiration ✓
- to produce energy ✓
- for the tail / sperm to move✓ / reach the ovum (4)
**(6)**

2.3

2.3.1 (a) Pituitary ✓ gland / Hypophysis (1)
(b) Ovulation ✓ (1)
(c) Progesterone ✓ (1)

2.3.2 Increasing levels of Oestrogen ✓ (1)

2.3.3 -Corpus luteum degenerated ✓
-Progesterone / Hormone C levels decrease ✓/ dropped (2)
**(6)**

2.4 2.4.1 (a) Vas deferens ✓ (1)

(b) Penis ✓ (1)

2.4.2 Stores sperm until mature ✓ / temporarily (1)

2.4.3 Surgery✓ can relocate the testis into the scrotum (1)

2.4.4 - Undescended testicle will be at body temperature ✓
- Sperm production will be lower✓ / sperm can denature
- Less sperm will be produced ✓/ low sperm count
- Lower chance of fertilisation ✓/ infertility

Any (4)
**(8)**

2.5 2.5.1 (a) Internal✓ fertilisation (1)

(b) - Gametes✓ / developing embryos are inside the female body - protected against drying out✓ / predators / washed away

- Gametes are in close proximity✓ – increases chance of fertilization✓ (Any 1 x 2 ) (2)

2.5.2 Ovipary✓ (1)

2.5.3 Eyes open✓
(Fully) mobile✓ (2)
**(6)**

2.6 2.6.1 (a) Adrenal gland✓ (1)

(b) Adrenalin✓ (1)

(c) Dilates pupil✓ (1)

2.6.2 - **Increases** heart rate ✓/ blood pressure
- **more** blood✓
- containing (**oxygen and glucose**)✓
- is transported to the muscles ✓
- the rate of cellular respiration **increases**✓
- releasing **more** energy✓

OR

- **Increased** heart rate / blood pressure✓
- **More** blood✓
- Containing $CO_2$ ✓
- to lungs✓

- **More** $CO_2$ exhaled✓ Any (4)
**(7)**

2.7 2.7.1 Auxin ✓ (1)

2.7.2
- Absence of auxins on apical buds / tips of stem✓
- Growth of lateral branches will be stimulated✓
- More fruit will be produced✓
- Farmer will sell more fruit / more easily harvest fruit✓ (3)
- **More** profit made ✓ **(4)**

**Total Question 2 [50]**

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**QUESTION 3**

3.1 3.1.1 Gibberellins (1)

3.1.2 The secretion of gibberellins will be lowered ✓✓ / inhibited (2)

3.1.3 Glucose is required to produce energy✓✓/ (2)
Glucose is required for cellular respiration to produce energy **(5)**

3.2 3.2.1 A✓ (1)

3.2.2
- Blood glucose levels are above normal at the start✓
- Blood glucose levels stay high longer ✓ (2)

3.2.3 -Pancreas / islets of Langerhans is stimulated✓/ betta cells to
-Secrete **more** insulin✓ to
-The (**liver and muscle**) cells✓
-Stimulate the liver to convert glucose to glycogen✓ / muscles to absorb more glucose
-Then blood glucose levels will decrease✓ Any 4 (4)
**(7)**

3.3
- Receptors in **the carotid artery** is stimulated✓ and
- Impulses are sent to the **medulla oblongata**✓
- The medulla oblongata **stimulates the heart**✓
- To **beat faster**✓ causing
- **More $CO_2$** to be taken to **the lungs**✓
- The breathing muscles✓/ **(intercostal muscles and diaphragm)**
- Contract **more** ✓actively and
- The **rate and depth** of breathing **increases**✓
- **More** $CO_2$ is exhaled✓
- The $CO_2$ levels **in the blood decreases**✓ Any **(5)**

3.4 3.4.1 Reflex arc✓ (1)

3.4.2 Interneuron ✓/ connector neuron (1)

3.4.3 Convert a stimulus **into** a nerve impulse✓/
transmits the impulse **to** the sensory neuron Any (1)

3.4.4 To protect the body from harm✓ (1)

3.4.5
- the axon of the motor neuron will not be insulated✓
- leading to slow transmission of impulses✓
- causing the response to be slow✓ (3)

3.5 It controls all involuntary actions✓
It is divided into sympathetic nervous system✓ and
Parasympathetic nervous system✓
Sympathetic nervous system prepares the body for action /
stimulates the response✓
Parasympathetic nervous system returns the body to normal /
inhibits the response✓ Any **(4)**

3.6 3.6.1 (a) Cochlea✓ (1)

(b) Traps sound waves✓ / Transmit sound waves to the auditory canal (1)

3.6.2
- To equalize pressure✓ on either side of the tympanic membrane ✓
- to ensure that vibrations✓ are transmitted
- from the tympanic membrane to the oval window ✓ / ossicles

Any (3)

3.6.3
- the ossicles will not be able to vibrate✓ and
- no vibrations will be transmitted / amplified to the oval window✓
- no pressure waves will form in the endolymph / cochlea✓
- and the organ of Corti will not be stimulated✓
- to convert pressure waves into impulses✓
- no impulse will be transported to the cerebrum✓
- leading to hearing loss / deafness✓ Any (4)

**(9)**

3.7 3.7.1 Sclera✓ (1)

3.7.2 B✓ (1)

3.7.3 Yellow spot ✓ / Fovea (centralis) (1)

3.7.4 Maintains the shape of the eye✓
Provides nutrition to the eye✓
Refraction of light✓ Any (1)

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3.7.5 -Elastic✓
accommodation of the eye✓/Can change shape/ more or less convex

- It is transparent✓
To allow light to pass through✓

-It is convex✓
To refract or bend light✓
**(Mark first TWO only)** (Any 2 x 2) (4)

3.7.6 Leading to blindness *✓/blurry vision

-Makes the lens opaque ✓ / less transparent / cloudy
-Less / no light passes through the lens✓ / part D
-Less / no light focused on the retina ✓and
-No light rays will be converted to impulses✓
-And transmitted via the optical nerve✓
-To the cerebrum for interpretation✓

(Compulsory mark *✓ + Any 4) (5)
**(13)**

**Total Question 3: [50]**

**TOTAL SECTION B: 100**

**GRAND TOTAL: 150**

***Good luck with the marking – Remember principal 16***