education

Department of Education
FREE STATE PROVINCE

GRADE 12

LIFE SCIENCES

JUNE 2025

TOTAL: 150

MARKING GUIDELINES

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.

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SECTION A

QUESTION 1

1.1	1.1.1	B ✓✓		
	1.1.2	C ✓✓		
	1.1.3	B ✓✓		
	1.1.4	C ✓✓		
	1.1.5	B ✓✓		
	1.1.6	B ✓✓		
	1.1.7	C ✓✓		
	1.1.8	D ✓✓		
	1.1.9	D ✓✓	(9 x 2)	**(18)**
1.2	1.2.1	Epididymis✓		
	1.2.2	Internal fertilisation✓		
	1.2.3	Parental care✓		
	1.2.4	Diabetes✓mellitus		
	1.2.5	Ovaries✓		
	1.2.6	Synapse✓		
	1.2.7	Morula✓		
	1.2.8	Puberty✓		
	1.2.9	Chorionic villi✓	(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) D✓ Testis✓		(2)
		(b) C✓ Urethra✓		(2)
		(c) A✓ Cowper gland✓		(2)
	1.4.2	Testosterone ✓		(1)
				(10)
1.5	1.5.1	(a) B✓ Corpus callosum✓		(2)
		(b) D✓ Medulla Oblongata✓		(2)
		(c) A✓ Cerebrum✓		(2)
	1.5.2	- Brain✓ - Spinal cord✓ **(Mark first TWO only)**		(2)
	1.5.3	- Cranium✓ - Meninges✓ - Cerebrospinal fluid✓ **(Mark first TWO only)**	Any	(2) **(10)**
			TOTAL SECTION A:	**50**

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SECTION B

QUESTION 2

2.1 2.1.1 External✓ (1)

2.1.2
- 100 eggs are released✓ because the ova can be washed away✓/eaten by predators
- The male grasp onto the female✓ so that the sperm is release on the ova✓/in proximity of the ova.
- Eggs are imbedded in the back of the female✓ to protect the eggs from predators

Any (4)

(Mark first TWO only)

2.1.3 Ovipary✓ (1)

(6)

2.2 2.2.1
(a) Ovum✓
(b) Ovulation✓
(c) LH✓/(luteinising hormone) (3)

2.2.2
- Ovarian✓ cycle
- Uterine✓ cycle

(Mark first TWO only) (2)

2.2.3 Hormone **B**/Progesterone decreases✓ to 28 days
The corpus luteum disintegrate✓
(Mark first TWO only) (2)

2.2.4
- 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✓
- This occurs in a monthly cycle✓

Any (5)

(12)

2.3
- Nutrition of the fetus✓
- Excretion✓
- Gas exchange✓
- Acts as a microfilter✓
- Endocrine function✓
- The point of attachment to the mother✓

Any (4)

(Mark first FOUR only)

2.4 2.4.1 Spinal cord✓ (1)

2.4.2 Rapid✓, automatic✓ reaction to a stimulus✓ (3)

2.4.3

Neuron A/ Sensory neuron	Neuron D/ Motor neuron
Monopolar neuron✓/ One outgrowth from the cell body	Multipolar neuron✓/ Multiple outgrowths from the cell body
Both the dendrite and axon cover with a myelin sheath	Only the axon is covered with a myelin sheath
The dendrites are long and the axon is short✓	The dendrites are short, and the axon are long✓
The cell body is in the middle of the neuron	The cell body is at the end of a neuron

(Mark first TWO only) Any (2 x 2) + (1) table✓ (5)

2.4.4
- The spinal cord shortens the reaction time by sending impulses directly to the effector✓
- If the brain is involved, it delays the reaction✓
- Causing injury✓/being burned Any

(Mark first TWO only) (2)

2.5 2.4.5
- This will cause a slow transmission of impulses✓
- The myelin sheath is damaged✓ by multiple sclerosis
- Resulting in a slow reaction time✓

(3)
(14)

Oestrogen and progesterone✓

2.5.1 (1)

2.5.2
- The control✓
- to ensure that oestrogen and progesterone are responsible for the thickening of the endometrium✓

(2)

2.5.3
- same diet✓
- same exercise✓
- same age✓
- same period✓/ of 10 days
- healthy humans✓ Any

(Mark first TWO only) (2)

2.6

2.5.4 Oestrogen and progesterone increase the thickness of the endometrium more than only oestrogen of progesterone.✓✓

(2)
(7)

2.6.1 (a) Crista✓ Maculae✓

(2)

(b) Sensory✓ neuron

(1)

- Preventing echoes from forming

2.6.2 - Absorb excess pressure waves from the inner ear Any
(Mark first ONE only) (1)

- The organ of Corti will be stimulated✓

2.6.3 - To convert the pressure waves✓ to
- impulses✓

(3)
(7)

Total Question 2 [50]

QUESTION 3

3.1 3.1.1 (a) Aqueous humour✓ (1)
(b) Cornea✓ (1)
(c) Retina✓ (1)

3.1.2 - Elastic✓
The lens changes shape to allow for accommodation✓
- Convex✓
To focus on light rays on the retina✓ refraction
- Transparent✓
To allow light to pass through✓ to the retina Any (2x2) (4)
(Mark first TWO only)

3.1.3 - The circular muscles relax✓ and
- The radial muscles contract✓
- The pupil dilates✓/diameter enlarger
- So that more light enters the eye✓
- To be focused on the retina✓ (5)

3.1.4 - Ciliary muscle contract✓
- Ciliary body move towards lens✓
- Suspensory ligaments slacken✓ (loosen)
- Tension on the lens decreases✓
- Lens become more convex✓
- This causes light rays to bend more✓
- to focus on the retina✓ and form a clear image (6)
(18)

3.2 3.2.1 Short-sightedness✓/myopia (1)

3.2.2 The eyeball is to round✓/cornea is too convex so the light rays are refracted more and the light rays focus in front of the retina✓ and not on the retina, so no clear image is formed (2)
(3)

3.3 **Multipolar neuron**

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Heading of the diagram (C)	1
Correct type of diagram/neuron (T)	1
Any 1 label (L)	1
Any 2 label (L)	2
Any 3 labels (L)	3

(5)

3.4 3.4.1 (a) A✓ - Pituitary gland✓/Hypothesis (2)

(b) B✓ - Thyroid gland✓ (2)

(c) D✓ - Pancreas✓ (2)

3.4.2 (a) FSH✓ (1)

(b) Growth hormone✓/GH (1)

(c) Glucagon✓ (1)

3.4.3 Goiter✓ (1)

3.4.4 Pancreases secrete pancreatic juice✓/enzymes through duct✓
Pancreases secrete hormones✓/(insulin and glucagon) directly in the blood✓ Any (2x2) (4)
(14)

3.5 3.5.1
- Chemical messengers✓
- Proteins✓/(Organic Compound)
- Small quantities needed✓
- Transport to target organs✓
- Hormones are stimulatory or inhibitory✓

Any (3)
(Mark first THREE only)

3.5.2 Adrenalin✓ (1)

3.5.3
- Increases heart rate✓ leading to a increased blood pressure supplies more glucose and O_2 for cell respiration✓
- Stimulates the liver to convert more glycogen into glucose✓ to provide more glucose for cell reparation✓
- Blood supply to the skeletal muscles and heart muscle increases✓ so that muscle cells get more glucose and O_2 for cell respiration✓
- Pupils dilate✓ and more light enters the eye to focus the light rays on the retina to form a clear image✓
- Blood vessel in skin narrows✓/vasoconstriction and less blood goes to skin and intestines and more blood to the muscle cells for cell respiration✓
- Breathing rate and depth increase✓ to supply more O_2 for cell respiration✓
- Body cells✓ – Increased metabolic rate✓ Any (2x3) **(Mark first THREE only)** (6) **(10)**

Total Question 3: [50]

TOTAL SECTION B: 100

GRAND TOTAL: 150