KWAZULU-NATAL PROVINCE

EDUCATION

REPUBLIC OF SOUTH AFRICA

PROVINCIAL STANDARDISED ASSESSMENT

GRADE 12

LIFE SCIENCES P1

SEPTEMBER 2026

MARKING GUIDELINES

MARKS: 150

This memorandum consists of 7 pages.

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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.

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SECTION A
QUESTION 1

1.1	1.1.1	D✓✓		
	1.1.2	A✓✓		
	1.1.3	A✓✓		
	1.1.4	B✓✓		
	1.1.5	A✓✓		
	1.1.6	B✓✓		
	1.1.7	D✓✓		
	1.1.8	D✓✓		
	1.1.9	B✓✓		
	1.1.10	B✓✓	(10 x 2)	**(20)**
1.2	1.2.1	Placenta✓		
	1.2.2	Binocular vision✓		
	1.2.3	Gibberellins✓		
	1.2.4	Aqueous humour✓		
	1.2.5	Apical dominance✓		
	1.2.6	Tropism✓		
	1.2.7	Goitre✓		
	1.2.8	Pinna✓		
	1.2.9	Cataracts✓		**(9)**
1.3	1.3.1	A only✓✓		(2)
	1.3.2	B only✓✓		(2)
	1.3.3	B only✓✓		(2)
				(6)
1.4	1.4.1	(a) Interneuron✓/connector neuron		(1)
		(b) Sensory neuron✓		(1)
		(c) Spinal nerve✓		(1)
	1.4.2	(a) B✓		(1)
		(b) D✓		(1)
				(5)
1.5	1.5.1	- FSH✓ - LH✓ - GH✓ - Prolactin✓ - TSH✓ **(Mark the FIRST TWO only)**	Any	(2)
	1.5.2	(a) B✓ - Thyroid✓ gland		(2)
		(b) A✓ - Pituitary✓ gland		(2)
		(c) C✓ - Pancreas✓		(2)
		(d) E✓ – Adrenal✓ gland		(2)
				(10)
			TOTAL SECTION A:	**[50]**

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SECTION B
QUESTION 2

2.1 2.1.1 Oogenesis✓ (1)

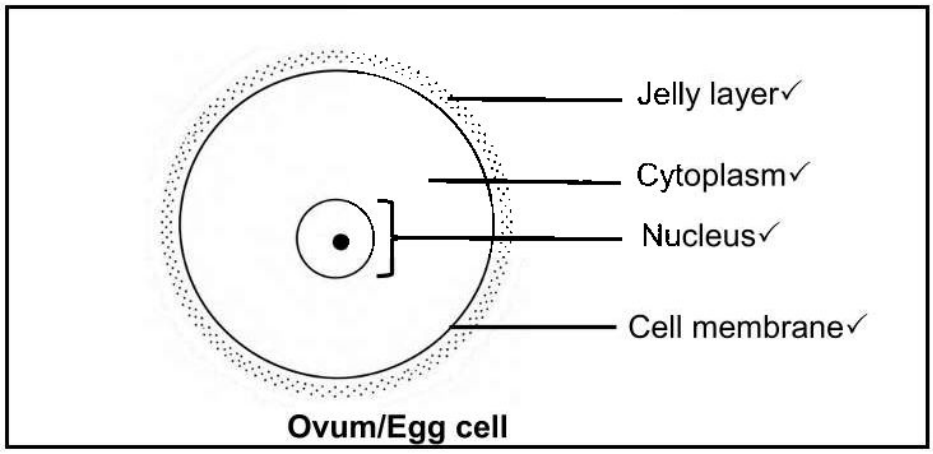
2.1.2 One haploid gamete is formed in diagram A✓/oogenesis while 4 haploid gametes are formed in diagram B✓/spermatogenesis✓

OR

3 haploid cells disintegrate in diagram A✓ while no cell disintegration in diagram B✓ (2)

2.1.3
- Under the influence of testosterone✓
- diploid cells✓
- in the seminiferous tubes✓
- undergo meiosis✓
- to form haploid sperm cells✓ Any (4)

2.1.4



Ovum/Egg cell

Marking guide:

Criteria	Marks
Caption (Ovum/Egg cell)	1
Correct diagram (Ovum) - **Must show all the parts**	1
Any 2 correct labels	2

(4)
(11)

2.2 2.2.1 Ovary✓ (1)

2.2.2
- Sperm cell come into contact with an ovum✓
- Haploid nucleus of the sperm enters the ovum✓ and
- fuses with the haploid nucleus of an ovum✓
- to form a diploid zygote✓ (4)

2.2.3
- Prevents desiccation of the foetus✓
- Allows for free movements of a foetus✓
- Acts as a shock absorber✓/Prevents mechanical injury
- Maintains temperature around the foetus✓ Any (2)

(Mark the FIRST TWO only)

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T✓

2.2.4

Umbilical vein	Umbilical artery
- High oxygen concentration✓/ Low carbon dioxide concentration	- Low oxygen concentration✓/ High carbon dioxide concentration
- High nutrients concentration✓	- Low nutrients concentration✓
- Low nitrogenous waste concentration✓	- High nitrogenous waste concentration✓

1 table + any (2×2) (5)

2.2.5
- Sperm cells will not be able to enter the uterus✓
- therefore there will be no fertilisation✓
- making the female infertile✓ Any (2)

2.2.6
- zygote undergoes mitosis✓
- to form a solid ball of cells✓
- called a morula✓
- which further undergoes mitosis to form a hollow ball of cells✓
- called a blastula✓/blastocyst Any (4)

(18)

2.3 2.3.1 (a) Luteinising hormone✓ (1)

(b) Menstruation✓ (1)

(c) Oestrogen✓ (1)

2.3.2
- Corpus luteum will not disintegrate✓
- continuing to produce hormone Y✓/progesterone
- causing progesterone to remain high✓ (3)

2.3.3
- Primary follicles will not be stimulated✓
- No development of the Graafian follicle✓/ovum
- Ovulation will not occur✓ (3)

(9)

2.4 2.4.1 Eustachian tube✓ (1)

2.4.2 Grommets✓/antibiotics/medication (1)

2.4.3 $\frac{7}{10}$✓ ×100✓ =70%✓ (3)

2.4.4 Regular exposure to cigarette smoke increases incidence of middle ear infection✓✓ (2)

(7)

2.5
- Auxins will move/diffuse to the dark side✓ of the stem
- The high concentration of auxins on the dark side✓
- results in more cell elongation✓/cell division/growth on the dark side
- therefore, less growth on the bright side✓
- causing the stems to grow/bend towards light✓ **(5)**

[50]

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QUESTION 3

3.1 3.1.1
- Prevents light reflection✓ by absorbing it
- Supplies the eye with nutrients and oxygen✓ (2)

(Mark the FIRST TWO only)

3.1.2
- Ciliary muscles relax✓
- Suspensory ligaments become taut✓/tension on the lens increases
- The lens becomes less convex✓ causing
- light to be refracted less✓
- to form a clear image on the retina✓ (5)

(7)

3.2 3.2.1 Cerebellum✓ (1)

3.2.2 (a) E✓ (1)

(b) A✓ (1)

3.2.3 (a)
- Medulla oblongata✓
- which controls breathing✓
- was not injured✓/affected by the accident (3)

(b)
- Impulses from the brain✓
- will not be transmitted to the lower part of the body✓
- resulting in paralysis✓/inability to move (3)

(9)

3.3
- The cristae are stimulated✓
- by the change in direction and speed✓ of the body
- The maculae is stimulated✓
- by the change in position of the head✓
- (cristae and maculae) convert the stimuli into an impulse✓
- The impulses are sent via the auditory nerve✓
- to the cerebellum✓
- which interprets the information✓
- and sends impulses to the skeletal muscles✓ to restore balance. Any **(7)**

3.4 3.4.1 Maintenance of an internal environment constant within narrow limits despite the changes in the external environment✓ (1)

3.4.2 Endocrine glands secrete hormones into the blood✓ while exocrine glands secrete substances into ducts✓ (2)

3.4.3
- Pituitary gland is stimulated✓
- to secrete more TSH✓ into the blood
- High levels of TSH stimulates the thyroid gland✓
- to secrete more thyroxin✓ into the blood
- High thyroxin levels increase metabolic rate✓/cellular respiration
- which releases more energy✓ Any (5)

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3.4.4 - Adrenalin stimulates the liver✓
- to convert stored glycogen into glucose✓
- which will increase glucose levels back to normal✓ (3)
(11)

3.5 3.5.1 (a) Carbon dioxide levels✓ (1)

(b) Exercise intensity✓ (1)

3.5.2 (a)
- Ask for permission✓
- Decide on the sample size✓
- Decide on the date✓/time/venue
- Decide on the recording/collection of data✓
- Decide on period of rest✓
- Decide on health condition✓/age/gender of participants Any (2)

(Mark the FIRST TWO only)

(b)
- Health status✓
- Gender✓
- Age✓ Any (2)

(Mark the FIRST TWO only)

3.5.3 - A larger sample✓
- will increase reliability✓ of the **results**. (2)

3.5.4 - To determine the effect of different exercise intensities on carbon dioxide levels✓ (1)

3.5.5 (a)
- To allow everyone's carbon dioxide to normalise✓
- and to verify that any change in blood carbon dioxide is due to the intensity of exercise✓ (2)

(Mark the FIRST TWO only)

(b)
- Increased energy demand✓
- increases the rate of cellular respiration✓
- resulting in more carbon dioxide produced✓ (3)

3.5.6 The increase in the intensity of physical activity increases the carbon dioxide levels in the blood✓✓ (2)
(16)
[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150

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