GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2026

MARKING GUIDELINES

LIFE SCIENCES (PAPER 1) (10831)

12 pages

PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. **If more information than marks allocated is given**
   Stop marking when the maximum marks are reached, draw a wavy line through the rest and indicate 'max' in the right-hand margin.

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

3. **If the whole process is given when only part of it is required**
   Read all and credit relevant part.

4. **If comparisons are asked for and descriptions are given**
   Accept if 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 the 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 the sequence and links become correct again, resume credit.

9. **Non-recognised abbreviations**
   Accept if first defined in the answer. If not defined, do not credit the unrecognised abbreviation but credit the rest of the answer if correct.

10. **Wrong numbering**
    It is acceptable if the answer fits into the correct sequence of questions, but the wrong number is given.

11. **If the language used changes the intended meaning**
    Do not accept.

12. **Spelling errors**
    Accept it if recognisable, 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 memo discussion meeting.

14. **If only a letter is asked for and only a name is given (and vice versa)**
Do not credit.

15. **If units are not given in measurements**
Candidates will lose marks. The memorandum will allocate marks for units separately.

16. Be sensitive to the **sense of an answer, which may be stated differently**.

17. **Caption**
All illustrations (diagrams, graphs, tables, etc.) must have a caption.

18. **Code-switching of official languages (terms and concepts)**
A word or two that appears in any official language other than the learners' assessment language used to the greatest extent in his/her answers should be credited if it is correct. A marker that is proficient in the relevant official language should be consulted. This applies to all official languages.

19. **Changes to the marking guidelines**
No changes may be made to the marking guidelines without consulting the provincial internal moderator.

SECTION A

QUESTION 1

1.1	1.1.1	D ✓✓		
	1.1.2	B ✓✓		
	1.1.3	C ✓✓		
	1.1.4	C ✓✓		
	1.1.5	D ✓✓		
	1.1.6	A ✓✓		
	1.1.7	D ✓✓		
	1.1.8	B ✓✓		
	1.1.9	B ✓✓		
	1.1.10	A ✓✓	(10 x 2)	**(20)**
1.2	1.2.1	Dendrite ✓		
	1.2.2	Prolactin ✓		
	1.2.3	Seminiferous ✓ tubules		
	1.2.4	Umbilical vein ✓		
	1.2.5	Homeostasis ✓		
	1.2.6	Cataract ✓		
	1.2.7	Puberty ✓		
	1.2.8	Urethra ✓	(8 x 1)	**(8)**
1.3	1.3.1	Both A and B ✓✓		
	1.3.2	B only ✓✓		
	1.3.3	B only ✓✓	(3 x 2)	**(6)**

1.4	1.4.1	Ovovivipary ✓	(1)
	1.4.2	Internal ✓ fertilisation	(1)
	1.4.3	Precocial ✓ development	(1)
	1.4.4	Within one hour after birth, hatchlings are: - fully mobile ✓ - independent from mother ✓ - can escape ✓ from predators - can hunt ✓ for themselves **(Mark first TWO only)**	(2)
	1.4.5	(a) Yolk sac ✓	(1)
		(b) Allantois ✓	(1)
		(c) Chorion ✓ / allantois	(1) **(8)**
1.5	1.5.1	(a) A ✓ Cerebellum ✓	(2)
		(b) C ✓ Corpus callosum ✓	(2)
		(c) B ✓ Cerebrum ✓	(2)
	1.5.2	- Meninges ✓ - Vertebral column ✓/spine/vertebrae/vertebra - Cerebrospinal fluid ✓ **(Mark first TWO only)**	(2) **(8)**

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1 (a) Pituitary ✓ (gland)/hypophysis (1)
(b) Progesterone ✓ (1)

2.1.2 (Day) 13 ✓ (1)

2.1.3 Oestrogen ✓ (1)

2.1.4 No ✓ (1)

2.1.5
- (The concentration of) hormone B/progesterone decreases after day 17 ✓ / day 24
- because the corpus luteum is degenerating ✓
- indicating that implantation did not take place. ✓ Any (2)

2.1.6
- (If) Lutenising hormone ✓/LH (is not secreted)
- No ovulation will occur ✓/Graafian follicle will not rupture
- The Graafian follicle will not be converted into a corpus luteum ✓
- No progesterone will be released ✓
- Endometrium will break down ✓/will not be maintained /menstruation will occur
- **Shorter/fewer days for the (menstrual) cycle ✓* / cycle is 12 days instead of 28 days**

1 Compulsory Mark* + any 3 (4)
(11)

2.2 2.2.1 Fallopian tube ✓ (1)

2.2.2 **Oogenesis ✓***
- 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 the follicle enlarges and undergoes meiosis ✓
- Of the four cells that are produced, only one cell survives to form a mature haploid ovum ✓

1 Compulsory Mark* + Any 4 (5)

2.2.3

Stage C/Morula	Stage D/Blastocyst/Blastula
Solid ball of cells ✓	Hollow/ fluid-filled ball of cells ✓
Less cells ✓/smaller	More cells ✓/bigger
One mark for drawing the table with the correct column headings. ✓ One correct and corresponding difference – mark first ONE only	

(3)

2.2.4 (a) Mitosis ✓ (1)

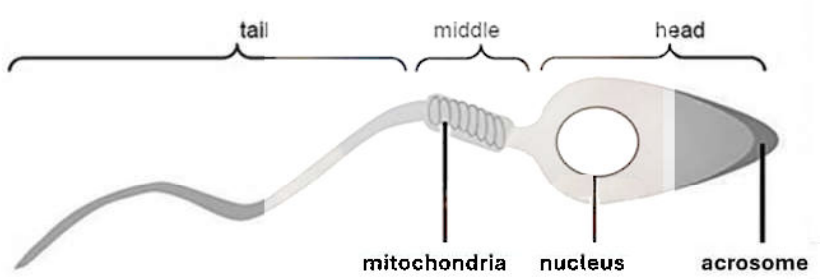
(b) Meiosis ✓ (1)

2.2.5
- A haploid (23 chromosomes) sperm cell / male gamete penetrates (through the jelly layer of) a haploid (23 chromosomes) ovum / female gamete ✓
- the nucleus of the ovum / female gamete and the nucleus of the sperm cell / male gamete fuse ✓
- resulting in a diploid (46 chromosomes) zygote ✓

Any (2)

2.2.6

Diagram of a sperm (cell)



Criteria	Letter	Mark
Correct caption of the diagram – Sperm (cell)	**C**	1
Correct diagram drawn – must contain the three segments of a sperm cell.	**D**	1
All parts drawn correctly - Torpedo-shaped head - Midpiece with mitochondria - Long tail - Acrosome drawn - Correct proportion of the diagram (size of head larger than the middle part; tail should be longer than the head and the middle part combined)	**P**	1
Any TWO correct labels	**L**	2

(5)
(18)

2.3 2.3.1 (a) Sleep duration ✓ (1)

(b) Reaction time ✓ (1)

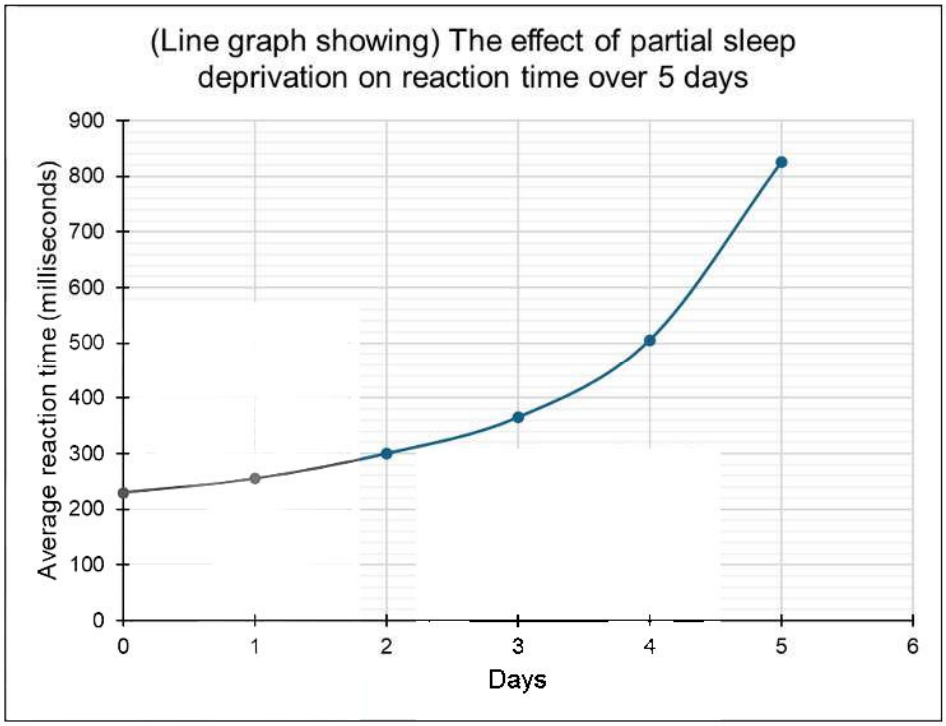
2.3.2
- same health ✓ status
- all males ✓
- 2 sleep cycles ✓
- same age range between 20 – 25 years ✓
- same duration of sleep cycle, 5 nights ✓
- Reaction time measured at the same time ✓ each day
- Same reaction time test app ✓ used
- Same two sleep cycles of full/8hrs per night and insufficient sleep/3 hrs per night ✓
- Same participants used for both sleep cycles ✓
- All participants completed 3/three attempts ✓

(Mark first TWO only) (2)

2.3.3 - 74 participants ✓ were used
- 3 attempts ✓ for each reaction time
- Average reaction time was calculated ✓

(Mark first ONE only) (1)

2.3.4



CRITERIA	Key	MARK
Line graph drawn	**T**	1
The caption of the graph includes both variables and the number of days	**C**	1
Labels on the X-axis and Y-axis Correct unit on the Y-axis	**L**	1
Scale for Y-axis and X-axis	**S**	1
Plotting **(P)** correctly done for: 1 – 5 points correct All 6 points correct	**P**	 1 2

(6)

NOTE:

If a histogram or bar graph is drawn, marks will be lost for:
• Type of graph and scale

If axes are transposed:
• Can get all marks if labels are also swapped

• If axis labels are not corresponding to the correct axis, then:
➢ Marks will be lost for labels and scale
➢ Plotting can get credit if coordinates are correct

(11)

2.4.2 - It/sclera/part B is tough ✓ to protect the inner parts of the eye ✓ /to allow attachment of the eye muscles

OR

- It/sclera/part B is inelastic ✓ to maintain the shape of the eye ✓

OR

- It/sclera/part B is opaque ✓ to prevent light from entering the eye ✓

(Mark first ONE only) (2)

2.4.3 Bright light ✓/increase in light intensity (1)

2.4.4 - Radial muscles of the iris relax ✓
- circular muscles (of the iris) contract ✓
- the pupil constricts✓/diameter of pupil decreases
- the amount of light entering the eye is reduced✓/less light will enter the eye (4)

2.4.5 Rods ✓
Cones ✓ (2)

(10)
[50]

QUESTION 3

3.1 - (Semicircular canals) lie on three different planes ✓/at 90° angles to each other
- To detect movement in any direction✓
- Fluid moves in at least one ✓ of the semi-circular canals
- Which stimulates the cristae ✓
- To produce impulses that are sent to the cerebellum ✓ for interpretation
- Via the vestibular branch of the auditory nerve ✓
- (Impulses) are sent to the skeletal/voluntary muscles ✓ to maintain balance

Any (4)

3.2 3.2.1 Cochlea ✓ (1)

3.2.2 136 million ✓/136 000 000 (1)

3.2.3 Most of the people with hearing loss are unable to access:
- early screening ✓
- treatment ✓
- hearing care ✓

(Mark first TWO only) (2)

3.2.4 $\frac{337\ million - 136\ million}{136\ million}$ ✓ $x\ 100$ ✓ $=\ 147{,}8$✓%

OR

$\frac{337\ 000\ 000 - 136\ 000\ 000}{136\ 000\ 000}$ ✓ $x\ 100$ ✓ $=\ 147{,}8$✓% (3)

3.2.5
- Less/no amplification will take place ✓
- The oval window will vibrate less ✓/ not vibrate / cause weaker/no pressure waves in fluid of the inner ear
- The organ of Corti will be less/not stimulated ✓/Stimulus will be converted into weaker impulses/not be converted into impulses
- Less/no processing of impulses in the cerebrum ✓
- **Reduction/loss in hearing will occur✓***

1 Compulsory mark* + Any 3 (4)

(11)

3.3 3.3.1
- Eating high energy meals ✓/meals rich in carbohydrates
- training for months ✓/a long time
- hydration ✓

(Mark first TWO only) (2)

3.3.2 (a) Pancreas ✓ (1)

(b) Glucagon ✓ (1)

(c)
- converts (stored) glycogen into glucose ✓
- in the liver ✓
- releases glucose into the bloodstream ✓ (to be transported to the muscles)
- More glucose available for cellular respiration ✓

Any 3 (3)

3.3.3
- More/increase in cellular respiration ✓ in muscles
- produces more carbon dioxide ✓/CO_2
- increasing the carbon dioxide/CO_2 in the blood ✓ decreasing blood pH
- which is detected by (chemo)receptors in the carotid artery ✓
- Impulses sent to medulla oblongata ✓
- **Which sends impulses to the heart to increase heart rate. ✓***

1 Compulsory Mark* + Any 4 (5)

(12)

3.4 3.4.1 Regulates:
- Metabolic rate ✓/Respiration rate
- Growth ✓
- Development of heart ✓/digestive system/brain/skeleton
- Maintains muscle tone ✓
- Function of the nervous system ✓

(Mark first TWO only) (2)

3.4.2 (a) A ✓ pituitary✓/hypophysis (2)

(b) F ✓ testes ✓ (2)

3.4.3 (a) D ✓ (1)

(b) - Endocrine glands are ductless, ✓while exocrine glands secrete substances through ducts ✓

OR

- Endocrine glands secrete (hormones) into the bloodstream ✓ while exocrine glands secrete into a cavity ✓/onto body surface

OR

- Endocrine glands secrete hormones ✓while exocrine glands secrete enzymes ✓ /mucus/saliva/sweat (named substance) (2)

3.4.4 Sympathetic ✓ nervous system (1)

3.4.5 (a) Constrict ✓/vasoconstriction (1)

(b) Increase ✓ (1)
(12)

3.5 3.5.1 Geotropism ✓ (1)

3.5.2 Auxins ✓ (1)

3.5.3
- In roots, auxins accumulate on the lower side ✓ due to gravity.
- which inhibits cell elongation ✓ on the lower side of the root
- The upper side of the root, with less auxin concentration ✓
- Which stimulates cell elongation ✓ on the upper side of the root
- This causes the root to grow and bend downwards ✓
- towards gravity ✓/in the same direction as gravity / positively geotropic

Any (5)

3.5.4 - Plants have thorns ✓ which cause injury ✓/pain
- Chemical ✓ secretions are poisonous ✓/cause herbivores to feel ill /die / taste / smell unpleasant/bitter (2 x 2) (4)
(11)
[50]

TOTAL SECTION B: 100

TOTAL: 150

ADDENDUM

1.4.5 (a) Do not accept: yolk

1.5.2 Accept: dura mater, arachnoid mater and pia mater (all three membranes named) **in place of meninges**

2.1.5 Accept: any day from day 17 for the decrease in progesterone

2.1.6 **Alternative answer :**

- (If) Lutenising hormone ✓/LH (is not secreted)
- No ovulation will occur ✓/Graafian follicle will not rupture
- The Graafian follicle will not be converted into a corpus luteum ✓
- (Graafian follicle) will continue to secrete oestrogen ✓
- Endometrium will not breakdown✓/ No menstruation
- **Longer /more days for the (menstrual) cycle** ✓

1 Compulsory Mark* + any 3

NOTE: Educator must use <u>either</u> the answer in the marking guideline or the alternative answer.

2.2.1 Accept: oviduct

2.2.2 Accept: germinal epithelium in the ovary undergo mitosis ✓

2.3.1(a) Accept: Amount of sleep

2.3.1(b) Do not accept: Average reaction time

2.4.2 Accept: It/sclera/part B is opaque✓ to prevent light from entering the eye✓

3.2.1 Accept: Organ of Corti

3.4.3(a) Accept : F ✓

3.5.1 Accept: Geotropic / Gravitropism/ Gravitropic