GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2024

MARKING GUIDELINES



LIFE SCIENCES (PAPER 1) (10831)

11 pages

PRINCIPLES RELA TO MARKING LIFE SCIENCES

1. **If more information than marks allocated is given**
   Stop marking when maximum marks are 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 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 markign guidelines**
No changes must be made to the marking guidelines without consulting the provincial internal moderator.

SECTION A

QUESTION 1

1.1 1.1.1 B ✓✓

1.1.2 A ✓✓

1.1.3 A ✓✓ or B ✓✓

1.1.4 C ✓✓

1.1.5 A ✓✓

1.1.6 A ✓✓

1.1.7 B ✓✓

1.1.8 B ✓✓

1.1.9 B ✓✓

1.1.10 A ✓✓ (10 x 2) **(20)**

1.2 1.2.1 Thorns ✓/spikes/prickles

1.2.2 Binocular ✓ vision

1.2.3 Prolactin ✓

1.2.4 Astigmatism ✓

1.2.5 Phototropism ✓

1.2.6 Blastocyst/Blastula ✓ (6 x 1) **(6)**

1.3 1.3.1 B Only ✓✓

1.3.2 A Only ✓✓

1.3.3 Both A and B ✓✓ or B only ✓✓ (3 x 2) **(6)**

Stanmorephysics.com

1.4 1.4.1 (a) C ✓ Egg shell/shell ✓ (2)

(b) F ✓ Yolk ✓ (2)

(c) E ✓ Allantoïs ✓ (2)

1.4.2 (a) (Diagram) A ✓ (1)

(b) (Diagram) A ✓ (1)

(8)

1.5	1.5.1	(a)	Amnion ✓	(1)
		(b)	Uterus ✓/uterus wall	(1)
		(c)	Cervix ✓	(1)
		(d)	Foetus ✓	(1)
	1.5.2	(a)	Vagina ✓	(1)
		(b)	Placenta ✓	(1)
		(c)	Umbilical vein ✓ /umbilical cord	(1)
	1.5.3		Muscle ✓/myometrium	(1)
	1.5.4		2, 4, 7, 8 ✓✓ **All numbers must be included to earn both marks numbers can be in any order.**	(2)
				(10)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1 (a) 1 ✓ – FSH✓/Follicle stimulating hormone (2)

(b) 4 ✓ – Oestrogen ✓ (2)

2.1.2 (a) – Secretes progesterone ✓
– To maintain the endometrium ✓ (2)

(b) – The pituitary gland/hypophysis ✓
– secretes LH ✓/luteinising hormone
– which stimulates the conversion of the ruptured Graafian follicle ✓ into the corpus luteum (3)

2.1.3 – The corpus luteum/structure 3 is getting smaller ✓/degenerating
– Progesterone/hormone 5 levels are dropping ✓/decreasing
– FSH/hormone 1 levels are increasing on days 27 – 28 ✓
(Mark first TWO only) (2)
(11)

2.2 2.2.1 (a) Vas deferens ✓ (1)

(b) Penis ✓ (1)

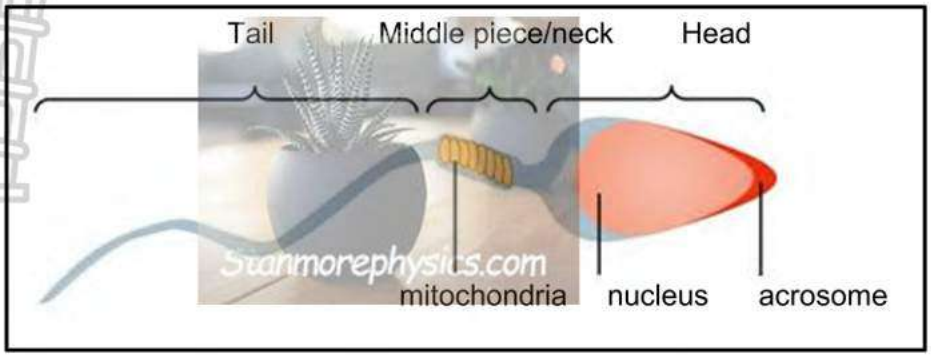
2.2.2 – Protection of testes ✓
– Because they are held outside the body ✓

OR

– Holds the testes outside of the body ✓
– to ensure they are at a lower temperature for optimum/healthy sperm cell production ✓ (2)

2.2.3 **Spermatogenesis** ✓*
– Under the influence of testosterone ✓
– diploid cells in the seminiferous tubules ✓ of the testes undergo meiosis ✓
– to form haploid sperm cells ✓
*** compulsory mark and any THREE points** (4)

2.2.4 Diagram of a sperm cell



The caption must include sperm cell	C ✓	(1)
The diagram contains a head with an acrosome and nucleus, a middle piece and a tail	D ✓	(1)
The correct proportion of the head, middle portion and tail	P ✓	(1)
Labels: any two correct labels	L ✓✓	(2)
TOTAL:		**5**

(5)

2.2.5 Epididymis → vas deferens /Sperm duct → urethra ✓✓
If the word testes is mentioned, no marks to be awarded

(2)
(15)

2.3 2.3.1 Gibberellins ✓ (1)

2.3.2
- Same height of corn seedling/All initial heights were 1 cm
- Same species were used
- Same number of seedlings in each sample
- Same amount of water was given
- Same amount of hormone mixture in water/1,00 micrograms of hormone
- Same period of 15 days for the experiment

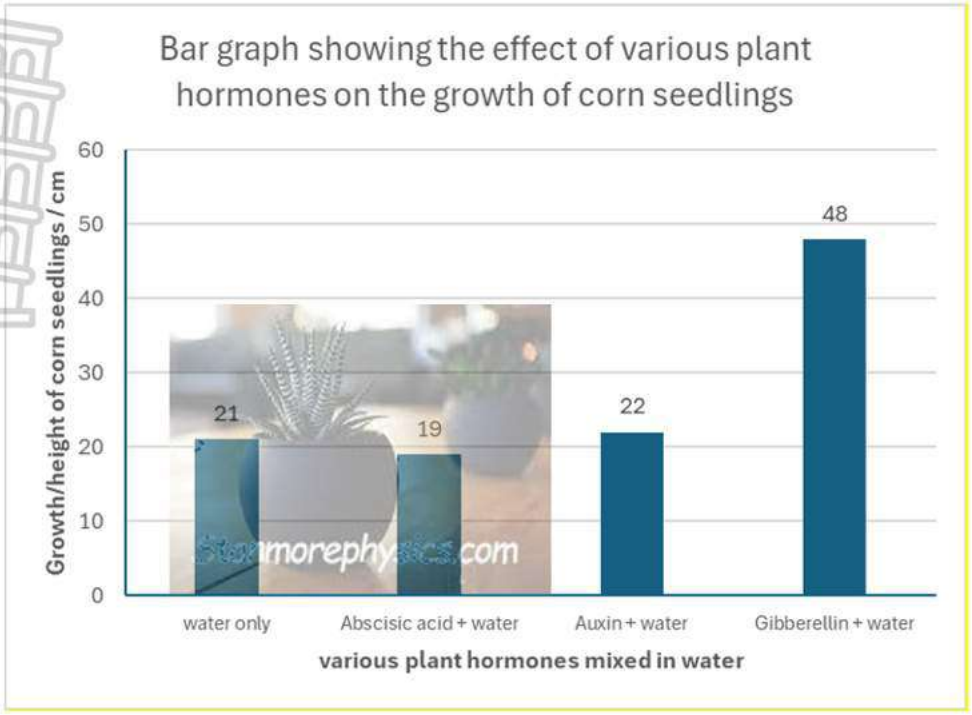
(Mark first TWO)
(**Do not accept** same environmental conditions)

(2)

2.3.3
- Promotes dormancy of seeds ✓/inhibits germination of seeds
- Inhibits growth of apical buds ✓
- Induces flowering in some plants ✓
- Promotes ageing of leaves ✓
- Stimulates the abscission/falling of leaves / fruit ✓
- Stimulates closing of stomata ✓

Any TWO (2)

2.3.4



Criteria assessment of the graph

CRITERIA	ELABORATION	SYMBOL	MARKS
Correct type of graph	Bar graph drawn	**(T)**	**1**
Caption of graph	Both variables included (the effect of different hormones on the growth /height of corn seedlings)	**(C)**	**1**
Axes labels	Correct label and unit for X- and Y-axes	**(L)**	**1**
Scale of X- and Y- axes	Equal spacing and correct scaling on X- and Y-axes	**(S)**	**1**
Plotting of points	1 – 3 bars plotted accurately All 4 bars plotted accurately	**(P)**	**1** **2**
	TOTAL:		**6**

NOTE: If the wrong type of graph is drawn, marks will be lost for "correct type of graph".

(6)
(11)

2.4 2.4.1 (a) Vitreous humour ✓ (1)

(b) Optic nerve ✓ (1)

2.4.2
- Transparent ✓ allows light to enter the eye and reach the retina ✓
- Causes refraction /bends light ✓ toward the yellow spot ✓/retina for clear vision
- Both are convex ✓to allow for refraction ✓

(Mark first ONE only) (2)

2.4.3
- Light stimulates the cones/photorecetor in part G /retina/yellow spot ✓
- to convert light to impulses ✓
- Impulses are transmitted via H/optic nerve ✓
- to the cerebrum ✓ to be interpreted (4)

2.4.4

Table showing structural differences in the eye for near and far vision.

Object closer than 6 m	Object further than 6 m
Ciliary muscle contracts ✓	Ciliary muscle relaxed ✓
Suspensory ligaments become slack/ slacken ✓	Suspensory ligaments tighten/ become taut ✓
Lens more convex ✓	Lens less convex ✓
T ✓ table including column headings	

Mark first TWO only **(5)**

(13)

[50]

QUESTION 3

3.1 3.1.1 2,2 ✓ hours ✓ (accept between 2,1 and 2,5 hours) (2)

3.1.2 Time it took for the blood alcohol levels to return to normal ✓/Blood alcohol concentration (1)

3.1.3
- To ensure that all participants started the investigation with no alcohol in their blood ✓
- To ensure the validity ✓of the investigation.
- To ensure that all participants begin the investigation with the same/zero blood alcohol concentration ✓
- To allow enough time for blood alcohol concentration to reach zero ✓

(Mark first TWO only) (2)

3.1.4 (a)
- Ensure that no participant is pregnant or breastfeeding ✓
- Ensure the participants are not allergic to alcohol ✓/no adverse reactions to alcohol
- Ensure participants do not drive ✓/operate heavy machinery/engage in activities that require concentration during and after the investigation

(Mark first TWO only) (2)

(b)
- Ask participants for permission to be part of the investigation ✓
- Decide how many participants to include ✓
- Decide on the age of participants ✓
- Decide on the weight of participants ✓
- Decide on the volumes of alcohol to be consumed ✓
- Decide on equipment✓/how to monitor blood alcohol concentration
- Decide on a suitable venue for the investigation ✓
- Decide on how to record data ✓
- Decide on a time to do the investigation ✓
- Ensure participants do not have a history of alcohol abuse ✓

(Mark first TWO only) (2)

3.1.5 (a) No ✓ (1)

(b)
- Only 1 participant per volume of alcohol ✓✓
- The investigation was not repeated ✓✓

(Mark first ONE only) (2)

3.1.6 The higher the volume of alcohol consumed the longer it takes to reduce blood alcohol concentration ✓✓ (2)

(14)

3.2 3.2.1 (a) Tympanic membrane ✓ (1)
(b) Cochlea ✓/organ of Corti (1)
(c) Eustachian tube ✓ (1)
(d) Auditory canal ✓ (1)

3.2.2
- The AirPods block the auditory canal ✓ and prevent the sound waves from the environment from reaching the tympanic membrane ✓
- The sound from the AirPods is too loud ✓ and the environmental noise is too quiet/soft by comparison, so it is not detected ✓

(Each point must have a linked cause and effect statement.) (4)

3.2.3 (a) Fred ✓ (1)
(b) (Fred's) volume is 92 dB ✓/over 80 dB
Which is more than the safe level ✓ of 80 dB (2)

(11)

3.3 3.3.1 (a) Aldosterone ✓ and adrenalin ✓ (2)
(b) Testosterone ✓ (1)

3.3.2 **Pituitary gland ✓*/hypophysis** is stimulated ✓

To secrete less TSH into the blood ✓
Low TSH levels stimulates the thyroid gland ✓
to secrete less thyroxin ✓
Thyroxin levels decrease ✓/ normal
* ✓ **Compulsory mark and FOUR other points** (5)

(8)

3.4 3.4.1 (a) Insulin ✓
(b) Blood sugar level starts decreasing ✓ (2)

3.4.2 – Maintenance of a constant internal environment within the body ✓
– Regardless of changes in the internal or external environment ✓ (2)

3.4.3 QUESTION REMOVED, THE PAPER WILL BE MARKED OUT OF 145 ~~(5)~~

(4)

3.5 3.5.1 Hypothalamus ✓ (1)

3.5.2
- the body temperature decreases ✓because
- Blood vessels of the skin dilate ✓/vasodilation
- More blood flows to the surface of the skin ✓
- More heat is lost from the surface of the skin ✓
- More blood flows to the sweat glands ✓
- to release more sweat ✓/to become more active
- Evaporation of sweat cools the skin✓

MARK ANY (5)

3.5.3 Increase in cellular respiration ✓ in muscles
produces more energy ✓as heat (2)
(8)
[45]

TOTAL SECTION B: 95

TOTAL: 145

ADDENDUM

question	Accept
1.2.2	Stereoscopic / 3D vision
1.5.1 (a)	Amniotic sac
1.5.1 (b)	Uterine wall
2.1.2 (a)	To maintain the endometrium ✓/further thicken the endometrium
2.2.1 (a)	Sperm duct
2.2.2	2^0 C lower than body temperature /35^{o}C
2.2.5	If learners included outside penis /into vagina after the urethra they can be awarded the marks.
2.3.2	The word SAME must be included in the answers to award mark