



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

GRADE 12

LIFE SCIENCES

PREPARATORY EXAMINATION

2022

MARKING GUIDELINES

stanmorephysics.com

MARKS: 150

This MARKING GUIDELINES consists of 11 pages

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 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 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 becomes correct again, resume credit.
9. **Non-recognized abbreviations**
Accept if first defined in answer. If not defined, do not credit the unrecognised abbreviation but credit the rest of 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 recognizable, accept, provided it does not mean something else in Life Sciences or if it is out of context.
13. **If common names given in terminology**
Accept, provided it was accepted at the National memo discussion meeting.



14. **If only letter is asked for and only name is given (and vice versa)**
No credit.
15. **If units are not given in measurements**
Memorandum will allocate marks for units separately, except where it is already given in the question.
16. Be sensitive to the **sense of an answer, which may be stated in a different way.**
17. **Caption**
Credit will be given for captions to all illustrations (diagrams, graphs, tables, etc.) except where it is already given in the question.
18. **Code-switching of official languages (terms and concepts)**
A single 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 is applicable to all official languages.

SECTION A

QUESTION 1

1.1

1.1.1 C✓✓

1.1.2 B✓✓

1.1.3 C✓✓

1.1.4 B✓✓

1.1.5 A✓✓

1.1.6 C✓✓

1.1.7 C✓✓

1.1.8 C✓✓

1.1.9 D✓✓

1.1.10 A✓✓

(10 x 2) **(20)**

1.2

1.2.1 Prostate gland✓

1.2.2 Meninges✓

1.2.3 Adrenalin✓

1.2.4 Acrosome✓

1.2.5 Round window✓/fenestra rotunda

1.2.6 Blastula✓/Blastocyst

1.2.7 Photoreceptors✓

1.2.8 Stereoscopic✓vision/binocular

1.2.9 Menstruation✓

1.2.10 Spermatogenesis✓

(10 x 1) **(10)**

- 1.3
- 1.3.1 B only ✓✓
- 1.3.2 A only ✓✓
- 1.3.3 None ✓✓ (3 x 2) **(6)**
- 1.4
- 1.4.1 (a) B✓ – Sensory neuron✓ (2)
- (b) F✓ – Motor neuron✓ (2)
- (c) G✓ – Effector ✓/ muscle (2)
- 1.4.2 A to G ✓ **(7)**
- 1.5
- 1.5.1 (a) Hypothalamus✓ (1)
- (b) Adrenal gland✓ (1)
- 1.5.2 (a) B✓ – Pituitary gland✓/Hypophysis (2)
- (b) C ✓ - Thyroid gland✓ (2)
- 1.5.3 Goitre ✓ (1)
- (7)**

TOTAL QUESTION 1: [50]

TOTAL SECTION A : 50

SECTION B

QUESTION 2

2.1

2.1.1 (a) Umbilical cord✓ (1)

(b) Endometrium✓/uterus wall (1)

2.1.2 - Carbon dioxide✓
 - Nitrogenous wastes✓/ examples (2)

2.1.3 - It allows free movement of the foetus✓
 - It acts as a shock absorber✓/prevents mechanical injury to the foetus
 - It protects the foetus against dehydration✓
 - It protects the foetus against temperature changes✓
(Mark first TWO only) Any (3)

2.1.4 - Uterine walls are made up of muscles✓
 which contract and relax to push foetus✓/afterbirth forward (1 x 2) (2)

2.1.5 - Respiratory✓/Gaseous exchange system
 - Digestive✓system
 - Excretory✓system
(Mark first TWO only) Any (2)
(11)

2.2 - Fertility is reduced✓
 - because the temperature is always high✓
 - This will lead to production of abnormal sperms/no sperms/fewer sperms✓ **(3)**

2.3 (a) for family planning✓/to know when they can get pregnant (1)

(b) LH ✓/FSH/Oestrogen
 - There is a rise in levels✓of LH/FSH/Oestrogen
 - around the time of ovulation✓
(3)
(4)
(18)

2.4

2.4.1 - Gibberellins stimulates cell elongation✓/cell enlargement/
 elongation of internodes/cell growth (1)

2.4.2 $(120 - 80) \checkmark \text{ mm} = 40 \checkmark \text{ mm} \checkmark$ (3)

2.4.3 - Increase the number of plants used in each treatment✓
 - Repeat the investigation✓
 - Increase the period of the investigation✓
(Mark first TWO only) Any (2)


2.4.4 - Same species of pea plants✓
 - Same age✓
 - Same height✓
 - Same environmental conditions✓
 - Same number of pea plants✓
(Mark first TWO only) Any (2)

2.4.5 Auxins diffused from the paste into the plants✓
 Inhibiting growth of the lateral branches✓
 Once all the auxins were used up✓ from the paste
 The growth of the lateral branches increased✓ (4)
(12)

2.5

2.5.1 Brain✓ and spinal cord✓ (2)

2.5.2 - (Electrical) insulation✓
 - Speed up the transmission of impulses✓ (2)

2.5.3 Viruses✓
 Heredity✓
 Environment✓
 Auto-immunity✓
 Any (2)

2.5.4 Vision problems✓
 Weakness✓/fatigue
 Pains✓
 Spasms✓
 Cognitive problems✓
 Problems with bladder control✓ Any (2)
(8)

2.6

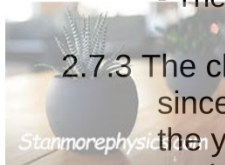
- Every organ and gland is controlled by two sets of
 nerves✓/double innervations
 - that act antagonistically/oppose each other✓
 - to control involuntary actions✓/brings about homeostasis
 - Sympathetic✓ nerves
 - stimulates a response✓/example
 - Parasympathetic✓ nerves
 - inhibits a response✓/example Any **(4)**

2.7

2.7.1 (a) Altricial✓ development (1)

(b) Precocial✓ development (1)

- 2.7.2
- Eyes are open when they are born✓
 - Their bodies are covered with fur ✓
 - They are able to move about soon✓ after birth
 - They are able to feed themselves✓
 - They are independent of their parents✓
- Any (2)



2.7.3 The chances of producing offsprings are greater✓ in ovovivipary since the eggs are protected✓ within the mother the young ones are better developed to cope in the environment✓

In ovipary many eggs laid may be eaten by predators✓
the young are not well developed ✓
and therefore have a smaller chance of survival✓ Any (2 x 2) (4)
(8)

TOTAL QUESTION 2: 50

QUESTION 3



3.1

- 3.1.1 (a) C✓ (1)
- (b) E✓ (1)
- 3.1.2 Long sightedness✓/hypermetropia/hyperopia (1)
- 3.1.3 The eyeball being too rounded✓
 the inability of the lens of the eye to become more convex✓ (2)
- 3.1.4 - The eyes are focused on the flower✓
 - The lens of the eye adjusts its convexity✓ to accommodate
 - the distance between the flower and the lens✓
 - The trees are at a different distance
 from the lens✓
 - The lens cannot adjust its convexity to accommodate two
 different distances at the same time✓ Any (4)
(9)

3.2

- 3.2.1 (a) F✓ (1)
- (b) - Diameter of the pupil is the largest✓
 - indicating dim light conditions✓ (2)
- 3.2.2 -***Pupillary mechanism**✓
 - Radial muscles of the iris contract✓
 - Circular muscles relax✓
 - The pupil dilates✓/becomes wider/bigger
 * **1 COMPULSORY MARK** (4)
(7)

3.3

- 3.3.1 (a) Diameters of the follicles✓ (1)
- (b) Days ✓ of the menstrual cycle (1)
- 3.3.2 - Seek permission from participants✓
 - Decide on the sample size✓
 - Decide on the equipment for measuring✓
 - Decide on the age- group of participants✓
 - Decide on using women with regular menstrual cycles✓
 - Decide on the recording tool✓/instrument/method
 - Decide on the duration✓
 - Learning how to use the equipment
 Any (3)

- 3.3.3 - The follicles decrease in size✓
 - as ovulation has taken place✓
 - The resulting corpus luteum becomes smaller✓
 - because fertilisation did not take place✓ Any (3)
- 3.3.4 - The production of FSH✓
 - will be inhibited✓
 - which will stop/inhibit the development/growth of a follicle✓
 - therefore the follicle will remain the same✓ Any (3)
- 3.4 (11)
- 3.4.1 (a) Ossicles✓ (1)
- (b) Cochlea✓ (1)
- 3.4.2 Structure C (tympanic membrane) has a larger surface area than B✓✓ (oval window) (2)
- 3.4.3 - Maculae✓ are stimulated
 - by changes in the position of the head✓
 - and convert the stimulus to nerve impulses✓
 - The impulses are transmitted by the vestibular/auditory nerve✓
 - to the cerebellum✓ to be interpreted
 - The cerebellum sends impulses via motor neuron✓
 to skeletal muscles✓ to restore balance Any (5)
- 3.5 (9)
- 3.5.1 - Gland that secretes hormones✓
 - directly into the blood ✓ (2)
- 3.5.2 (a) Insulin ✓ (1)
- (b) Glucagon✓ (1)
- 3.5.3 Pancreas✓ (1)
- 3.5.4 - There will be no conversion of glucose into glycogen✓
 - in the liver✓/muscles
 - no absorption of glucose by the cells✓
 - the blood glucose levels will remain high✓
 - and may lead to diabetes mellitus✓ Any (4)
- (9)

3.6

- The receptor cells in the hypothalamus are stimulated✓
- the hypothalamus sends impulses to the pituitary gland✓
- which secretes ADH✓
- ADH causes the permeability of renal tubules to increase✓
- this causes the renal tubules to reabsorb more water✓
- to the surrounding blood vessels✓
- the blood becomes more dilute✓
- a smaller volume of concentrated urine is excreted✓

Any (5)

TOTAL QUESTION 3: [50]

TOTAL SECTION B: [100]

GRAND TOTAL: 150