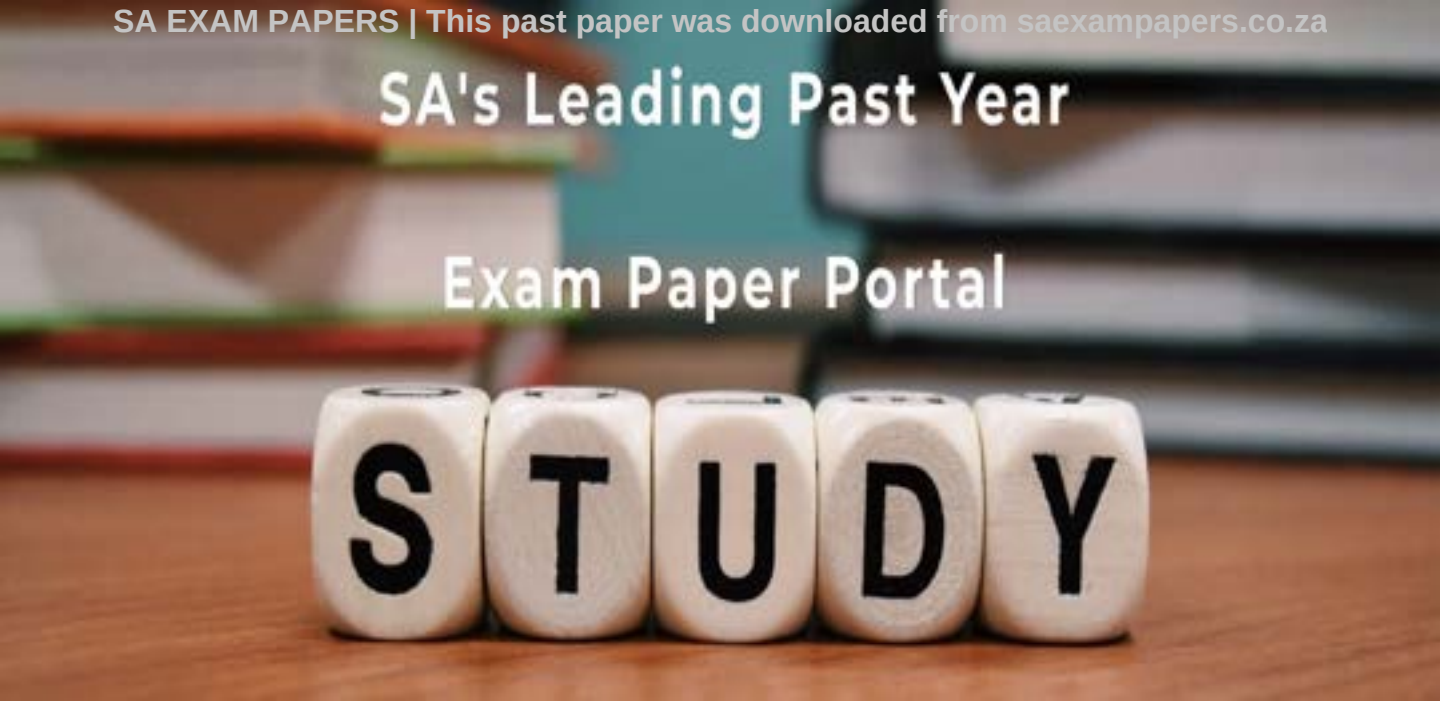


LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

LIFE SCIENCES P1

SEPTEMBER 2024

MEMO

MARKS: 150

This MARKING GUIDELINES consists of 10 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	C✓✓		
1.1.3	A✓✓		
1.1.4	A✓✓		
1.1.5	C✓✓		
1.1.6	B✓✓		
1.1.7	D✓✓		
1.1.8	B✓✓		
1.1.9	C✓✓		
		(9 x 2)	**(18)**

1.2

1.2.1	Implantation✓		
1.2.2	Peripheral✓nervous system		
1.2.3	Prolactin✓		
1.2.4	Chorion✓		
1.2.5	Corpus callosum✓.		
1.2.6	Umbilical vein✓		
1.2.7	Multiple sclerosis✓		
1.2.8	auditory canal✓		
1.2.9	Thorns✓		
1.2.10	Parental care✓	(10 x1)	**(10)**

1.3

1.3.1	None✓✓		
1.3.2	A only✓✓		
1.3.3	B only✓✓	(3 x 2)	**(6)**

1.4

1.4.1	(a) Effector✓/muscle		(1)
	(b) Interneuron✓/connector/relay		(1)
	(c) Synapse✓		(1)
1.4.2	(a) C✓ – Sensory neuron✓		(2)
	(b) B✓ - Motor neuron✓		(2)
1.4.3	C,D,B ✓✓ / *CDBA*	**(In the correct order)**	(2)
1.4.4	Reflex action✓		(1)
			(10)

1.5

1.5.1	(a) Pancreas✓		(1)
	(b) Adrenal ✓ gland		(1)
1.5.2	(a) Aldosterone✓		(1)
	(b) Growth hormone✓ / GH / *STH*		(1)
1.5.3	Diabetes ✓ mellitus		(1)
1.5.4	Negative feedback mechanism✓		(1)
			(6)
		TOTAL SECTION A:	**50**

SECTION B

QUESTION 2

2.1

2.1.1 (a) Auditory nerve✓ / *cochlear nerve* (1)
(b) Cochlea✓ (1)
(c) Oval window ✓ / *fenestra ovalis* (1)

2.1.2 Equalises pressure on both sides of the eardrum✓ *tympanum / tympanic membrane* **(Mark FIRST ONE only)** (1)

2.1.3 - use of grommets✓
- antibiotics ✓

(Mark FIRST ONE only) (1)

2.1.4 - the sound vibrations are transmitted from the large tympanic membrane✓ / A
- to the smaller oval window✓
- through the ossicles✓ / B
- which are arranged from largest to smallest✓
- this concentrates the vibrations✓thus amplifying them

Any (4)

2.1.5 - A change in speed/direction of movement
- stimulates the cristae✓
- the stimulus is converted into an impulse✓
- the impulse is transmitted to the cerebellum✓
- via the auditory nerve✓ / *vestibular nerve*
- the cerebellum sends impulses to the skeletal muscles ✓ to restore balance

(5)
(14)

2.2

2.2.1 (a) B✓ – Fallopian tube✓ / *oviduct* (2)
(b) C✓ – Uterus✓ (2)

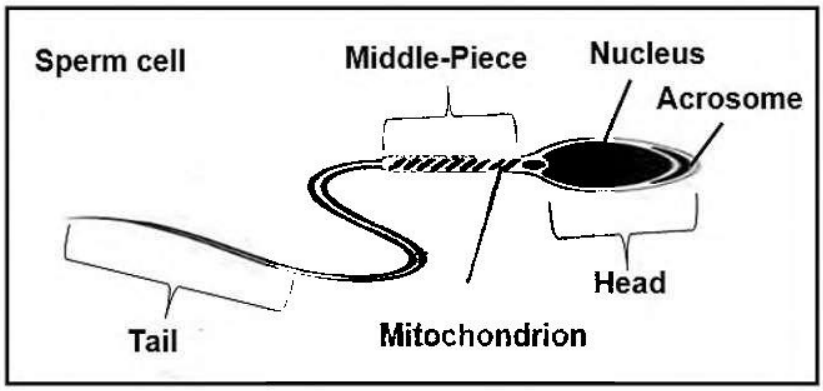
2.2.2 - it receives the penis during copulation✓
- place where semen is released during ejaculation✓
- it is a birth canal✓

(Mark FIRST TWO only) (2)

2.2.3 **- Oogenesis***✓
- Diploid cells✓ / *germinal epithelial cells*
- in the ovary undergo mitosis✓
- to form numerous follicles✓
- under the influence of FSH✓
- one cell inside the follicle enlarges and undergoes meiosis✓
- to form a haploid ovum✓

(1***Compulsory mark**+ Any4**)** (5)
(11)

2.3



Caption **(C)**	1 mark
Correct diagram **(D)**	1 mark
3 correct Labels **(L)**	3 marks

(5)

2.4

2.4.1 3 and 4✓

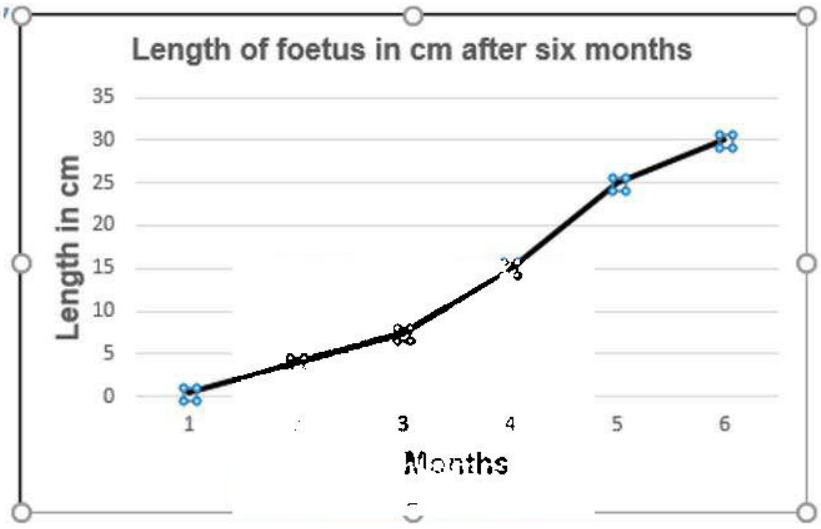
(Mark FIRST ONE only) (1)

2.4.2 $\frac{30 - 7,5}{7,5}$ ✓ $x\ 100$ ✓

$= 300\%$✓

(3)

2.4.3



(6)

Criteria for marking graph

Criteria	Mark allocation
Line graph is drawn **(T)**	1
Caption of graph include both variables**(C)**	1
Correct labels for X and Y axis**(L)**	1
Correct scale for X and Y axis **(S)**	1
Plotting **(P)** 1-4 Co-ordinates plotted All co-ordinates correct	 1 2

(10)

2.5

2.5.1 Day 14✓/15 (**accept** 15) (1)

2.5.2 Day *1 - 4*✓ (1)

2.5.3 - Stimulates the formation of the corpus luteum✓ (1)

2.5.4 - **an increase in the level of progesterone***✓
- inhibits the secretion of FSH✓
- no follicle will develop✓

OR

- **a decrease in the level progesterone***✓
- stimulates the secretion of FSH✓
- new follicle will develop✓

(1* Compulsory mark + Any1**)** (2)

2.5.5 - the corpus luteum starts to secrete progesterone✓ / *highest levels of progesterone*
- that continues to thicken the endometrium✓ (2)

2.5.6 No✓ (1)

2.5.7 - corpus luteum degenerated✓
- progesterone levels decreased✓
- FSH levels start to increase✓
- LH levels decrease✓
- *endometrium breaks down*✓ Any (2)

(10)

TOTAL QUESTION 2: 50

QUESTION 3

3.1

3.1.1 Eggs are retained/hatch inside the female body and the young are born live✓✓ (2)

3.1.2 3✓ **(Mark FIRST ONE only)** (1)

3.1.3 - the egg has the lowest/least yolk✓/energy content
- this will not allow maximum development before hatching✓ (2)

(5)

3.2

3.2.1 (a) – shoot will grow straight upwards✓
- auxins in the agar gel diffused evenly downwards✓
- causing equal growth on both sides of the shoot✓/cell elongation
- *no lateral branches will develop*✓ Any (2)

(b) – No upward growth✓
- since there is no auxins✓
- *lateral branches develop*✓ Any (2)

3.2.2 – same type of plant✓
– *same age of plant*✓
– *measure length at the same time*✓
– same environmental conditions✓ / (any example)
– tip removed at the same time✓
– tip removed at the same length✓
– same concentration/ *amount* of auxins✓
– same type of agar✓
Any (2)

3.2.3 – Repeat the investigation✓
– use more than one plant shoot✓/increase the sample size
(Mark FIRST TWO only) (2)

(8)

3.3

3.3.1 C✓ - Iris✓ (2)

3.3.2 ***Pupillary mechanism**✓
- circular muscles contract✓
- the radial muscles relax✓
- the pupil constricts✓
- less light enters the eye✓

(1* Compulsory mark + Any 4**)** (5)

3.3.3 Transparent✓- to permit light to pass through✓
OR
it is convex✓ - for the minor refraction of light rays✓ (2)

3.3.4 -maintains the shape of the cornea ✓
- supplies the lens and cornea with food and oxygen✓
- plays a minor role in their fraction of light✓

(Mark FIRST TWO only) (2)

3.3.5 1✓ (1)

3.3.6 The lens is less convex✓ (1)

3.3.7 - the ciliary muscles contract✓
- the ciliary body moves nearer to the lens✓
- suspensory ligaments slacken✓/tension decreases
- and tension on the lens is released✓
- the elastic lens becomes more convex✓ (5)

(18)

3.4

3.4.1 Maintenance of a constant internal environment within the body✓✓ (2)

3.4.2

(a) ADH✓ (1)
(b) Kidney✓ (1)

(4)

3.5 - receptor cells in the carotid artery✓ in the neck are stimulated
- to send nerve impulses to the medulla oblongata✓
- medulla oblongata stimulates breathing muscles✓ and heart✓
- breathing muscles contract more actively✓
- increasing the depth and rate of breathing✓
- the heart beats faster✓
- more carbon dioxide is exhaled✓
- the Carbon dioxide level returns back to normal✓

..... Any **(5)**

3.6

3.6.1 Adrenalin✓ (1)

3.6.2 It converts glycogen into glucose✓ (1)

3.6.3 – adrenalin causes the *blood vessels* to dilate✓since
– the muscles require more blood✓
– with more oxygen and glucose✓
– *for increased cellular respiration✓/ increase breakdown of glucose*
- to supply additional energy✓ Any (4)
(6)

3.7 -the thyroid gland becomes more active✓
- more thyroxin is secreted✓
- which increases metabolism✓/cellular respiration
- more heat is generated on a cold day✓ **(4)**

TOTAL QUESTION 3: 50
TOTAL SECTION B: 100
GRAND TOTAL: 150