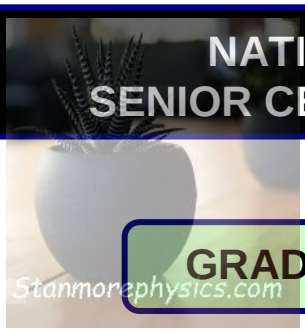
basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE



GRADE 12

LIFE SCIENCES P1

NOVEMBER 2024

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 9 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 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 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.

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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 standardisation meeting.

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

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15. **If units are not given in measurements**
Candidates will lose marks. Marking guidelines 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.

18. **Code-switching of official languages (terms and concepts)**
A single word or two that appear(s) 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.

19. **Changes to the marking guidelines**
No changes must be made to the marking guidelines without consulting the provincial internal moderator who in turn will consult with the national internal moderator (and the Umalusi moderators where necessary).

20. **Official marking guidelines**
Only marking guidelines bearing the signatures of the national internal moderator and the Umalusi moderators and distributed by the National Department of Basic Education via the provinces must be used.

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SECTION A

QUESTION 1

1.1	1.1.1	B✓✓		
	1.1.2	C✓✓		
	1.1.3	D✓✓		
	1.1.4	A✓✓		
	1.1.5	D✓✓		
	1.1.6	C✓✓		
	1.1.7	B✓✓		
	1.1.8	A✓✓		
	1.1.9	C✓✓		
	1.1.10	B✓✓	(10 x 2)	**(20)**
1.2	1.2.1	Umbilical cord✓		
	1.2.2	Autonomic✓ nervous system		
	1.2.3	Cristae✓		
	1.2.4	Stirrup✓/stapes		
	1.2.5	Geotropism✓/gravitropism		
	1.2.6	Cochlea✓		
	1.2.7	Gibberellins✓		
	1.2.8	Acrosome✓	(8 x 1)	**(8)**
1.3	1.3.1	A only✓✓		
	1.3.2	B only✓✓		
	1.3.3	A only✓✓	(3 x 2)	**(6)**
1.4	1.4.1	(a) C✓ - Urethra✓ **OR** D✓ - Penis✓		(2)
		(b) B✓ - Epididymis✓		(2)
		(c) E✓ - Testis✓		(2)
	1.4.2	(a) Prostate gland✓		(1)
		(b) Spermatogenesis✓		(1) **(8)**
1.5	1.5.1	A✓ F✓		(2)
	1.5.2	B✓ - Capillaries✓/blood vessel		
		C✓ - Sweat gland✓		(4)
	1.5.3	(a) ADH✓/Antidiuretic hormone		(1)
		(b) Kidney✓		(1) **(8)**

TOTAL SECTION A: 50

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SECTION B

QUESTION 2

2.1 2.1.1 (a) Fallopian tube✓ (1)

(b) Ovary✓ (1)

2.1.2 (a)
- It has a rich blood supply✓/is vascular
- It is glandular✓
- It is thick✓ Any (2)

(Mark first TWO only)

(b)
- Sperm cells are present in the fallopian tube✓/proximity of the ovum
- Ovulation has taken place✓/an ovum has been released (2)

(Mark first TWO only)

2.1.3
- During oogenesis✓*
- diploid cells in the ovary undergo mitosis✓
- to form numerous follicles✓
- At the onset of puberty✓
- under the influence of FSH✓
- one cell inside a follicle (enlarges and) undergoes meiosis✓
- Of the four cells that are produced, only one survives to form a (mature), haploid ovum✓

Compulsory mark ✓* (1) + Any (5) (6)

2.1.4
- Part A/the fallopian tube is unable to provide the space✓
- and there is no endometrium✓/blood supply
- to provide nutrients✓/oxygen **OR** remove waste products
- in order for the embryo to develop✓ Any (3)

(15)

2.2 2.2.1 20✓ (1)

2.2.2 FSH✓ (1)

2.2.3
- The progesterone level is decreasing✓/goes from 5 to 0,8 ng/ml therefore
- FSH secretion /the pituitary gland is no longer inhibited✓ (2)

2.2.4 $\left[\frac{280 - 70}{70}\right]$✓ x 100✓

= 300✓% (3)

2.2.5 - It remains high✓/will increase (1)

2.2.6
- The corpus luteum does not disintegrate✓
- and continues to secrete progesterone✓

OR

- The placenta develops✓
- which secretes progesterone✓ (2)

(10)

2.3 2.3.1 Sub-capsular✓ cataracts (1)

2.3.2
- Protein structures in the lens start to disintegrate and clump together✓
- The lens becomes opaque✓/milky and
- less/no light passes through✓ the lens
- onto the retina✓
- therefore less/no stimuli will be converted to impulses✓ (5)

(6)

2.4 2.4.1
- The eyeball is too short✓
- The image forms behind the retina✓
- causing blurred vision✓

OR

- The cornea is less convex✓
- Less refraction occurs✓/the image forms behind the retina
- causing blurred vision✓ (3)

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2.4.2
- The light rays will be refracted more✓ causing the image to fall
- on the retina✓ (2)

(5)

2.5 2.5.1 Motor✓neuron (1)

2.5.2
- The neuron has many dendrites✓/is multipolar
- The cell body is located at one end✓
- The axon is long and the dendrites are short✓ Any (1)

(Mark first ONE only)

2.5.3
- It transmits impulses✓
- from the central nervous system✓ /interneuron
- to the effector✓ (3)

2.5.4 C → A → B✓✓ (2)

2.5.5 Multiple sclerosis✓ (1)

(8)

2.6 2.6.1 (a) 5✓µm (1)

(b) 800✓µm (1)

2.6.2 (a) (The impulse speed) is faster in a myelinated neuron than in an unmyelinated neuron✓✓

OR

(The impulse speed) is slower in an unmyelinated neuron than in a myelinated neuron✓✓ (2)

(b) As the axon diameter increases, the impulse speed is faster ✓✓ (2)

(6)

[50]

QUESTION 3

3.1 3.1.1 (a) They lay eggs✓ (1)
(Mark first ONE only)

(b) - The eggs are protected✓/incubated by the parents
- The young chicks are fed by the parents✓/display parental care Any (1)
(Mark first ONE only)

3.1.2 - It increases the chances of fertilisation✓/gametes are in close contact
- Gametes are protected from predation✓/desiccation/ environmental factors
- Water is not needed✓
- Fewer gametes are needed✓ Any (2)
(Mark first TWO only)

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3.1.3 - Eyes are closed✓ when they hatch
- Bodies do not have (down) feathers✓
- Unable to move✓ directly after hatching
- Dependent on parents for food✓/protection Any (2)
(Mark first TWO only)

3.1.4 - The chicks are not fully developed when hatched✓ since
- the eggs have less yolk✓/ there is a high degree of parental care (2)
(8)

3.2 3.2.1 (a) Pupil✓ (1)

(b) Iris✓ (1)

3.2.2 - It is a rapid✓
- involuntary✓ response
- to light✓ (3)

3.2.3 - Radial✓ muscles
- Circular✓ muscles (2)
(Mark first TWO only)

3.2.4 - The pupil dilated✓/enlarged so that
- more light will enter the eye✓
- to improve vision✓
- in dim light✓ (4)
(11)

3.3 3.3.1 To ensure that the change in blood glucose levels was due to insulin only✓✓ (2)

3.3.2
- It stimulates the absorption of glucose✓ from the blood into the cells✓
- It stimulates the liver✓/muscles to convert glucose to glycogen✓
- It causes increased cellular respiration✓ which utilises glucose✓

Any (2 x 2) (4)

(Mark first TWO only)

3.3.3 Group **Y**✓ (1)

3.3.4
- At **0 mins, the blood glucose** level for group **Y** was within the normal range✓/ the blood glucose level for group **X** was high
- At **90 minutes the blood glucose** level for group **Y** returned to normal✓/the blood glucose levels for group **X** remained high
- After the ingestion of glucose, **the insulin level** for group **Y** increased✓ /the insulin level for group **X** decreased (3)

(10)

3.4 3.4.1 (a) Negative feedback✓ mechanism (1)

(b) Thyroid✓ (1)

(c) Goitre✓ (1)

3.4.2
- It regulates the metabolic rate✓
- It affects the growth and functioning of the heart✓/nervous system/
- It influences bone development✓/muscle control

Any (1)

(Mark first ONE only)

3.4.3
- The thyroxin level is low✓
- The pituitary gland is stimulated✓
- More TSH✓is secreted
- which stimulates gland Y✓/the thyroid gland
- to secrete more thyroxin✓

Any (4)

3.4.4
- A lower metabolic rate✓
- causes decreased usage of nutrients✓ and
- excess nutrients/fat will be stored in the body✓

Any (2)

(10)

3.5	3.5.1	(a)	(Presence of) auxins✓		(1)
		(b)	- Species✓ - Light✓ - Duration in the dark✓ **(Mark first TWO only)**	Any	(2)
	3.5.2	(a)	The plant/stem grows (straight) upwards✓		(1)
		(b)	- No upward growth will occur✓ - Lateral branches will develop✓	Any	(1)
	3.5.3		Four plants in each group✓✓		(2)
	3.5.4		- The auxins diffuse into the left side of the stem✓ - The higher concentration of auxins✓ on the left side - results in more cell elongation✓/growth of cells on the left side - There is less growth on the right-hand side✓and the stem will bend to the right-hand side		(4)
					(11)
					[50]

TOTAL SECTION B:	**100**
GRAND TOTAL:	**150**

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