



# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## **SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS**

**LIFE SCIENCES P1**

**MAY/JUNE 2024**

**MARKING GUIDELINES**

**MARKS: 150**

**These marking guidelines consist of 9 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 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.
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 memo discussion meeting.
14. **If only the letter is asked for but only the name is given (and vice versa)**  
Do not credit.

**15. If units are not given in measurements**

Candidates will lose marks. Memorandum 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 memorandum**

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

**20. Official memoranda**

Only memoranda 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.

**SECTION A****QUESTION 1**

1.1	1.1.1	B✓✓		
	1.1.2	A✓✓		
	1.1.3	A✓✓		
	1.1.4	C✓✓		
	1.1.5	B✓✓		
	1.1.6	C✓✓		
	1.1.7	A✓✓		
	1.1.8	B✓✓		
	1.1.9	B✓✓	(9 x 2)	<b>(18)</b>
1.2	1.2.1	Carotid artery✓		
	1.2.2	Vivipary✓		
	1.2.3	Rods✓		
	1.2.4	Corpus luteum✓		
	1.2.5	Epididymis✓		
	1.2.6	Tympanic membrane✓/tympanum		
	1.2.7	Testis✓		
	1.2.8	Prolactin✓	(8 x 1)	<b>(8)</b>
1.3	1.3.1	B only✓✓		
	1.3.2	Both A and B✓✓		
	1.3.3	A only✓✓	(3 x 2)	<b>(6)</b>
1.4	1.4.1	- Brain✓		
		- Spinal cord✓		(2)
		<b>(Mark first TWO only)</b>		
	1.4.2	(a) Corpus callosum✓		(1)
		(b) Cerebellum✓		(1)
	1.4.3	(a) C✓ Medulla oblongata✓		(2)
		(b) A✓ Cerebrum✓		(2)
				<b>(8)</b>

1.5	1.5.1	(a) Hypothalamus✓	(1)
		(b) Pituitary✓ gland/hypophysis	(1)
		(c) ADH✓/antidiuretic hormone	(1)
		(d) Nephron✓/renal tubules	(1)
	1.5.2	Decrease✓	(1) <b>(5)</b>
1.6	1.6.1	(a) Amniotic✓fluid	(1)
		(b) Placenta✓	(1)
	1.6.2	(a) Umbilical vein✓	(1)
		(b) - Chorionic villi✓/chorion - Endometrium✓ <b>(Mark first TWO only)</b>	(2) <b>(5)</b>
<b>TOTAL SECTION A:</b>			<b>50</b>

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**SECTION B****QUESTION 2**

- 2.1      2.1.1      Oogenesis✓ (1)
- 2.1.2      Amniotic✓egg (1)
- 2.1.3      - It has a shell✓  
                         to prevent drying out✓ of the embryo/amniotic fluid  
             - It has amniotic fluid✓  
                         to prevent drying out✓ of the embryo      Any (1 x 2) (2)
- (Mark first ONE only)**
- 2.1.4      - Females can reproduce without males✓  
                         increasing the chances of the species to survive✓/therefore,  
                         less energy is used for reproduction (2)
- (Mark first ONE only)** (6)
- 2.2      2.2.1      - Stimulates ovulation✓  
                         - Stimulates the development of the corpus luteum✓ (2)
- (Mark first TWO only)**
- 2.2.2      Follicle stimulating hormone✓/FSH (1)
- (Mark first ONE only)**
- 2.2.3      Progesterone✓ (1)
- 2.2.4      - The (progesterone) levels will remain low✓  
                         - The LH levels are low✓ therefore  
                         - ovulation will not take place✓ and  
                         - no corpus luteum will develop✓ (4)
- 2.2.5      Hormone X /progesterone levels remain high✓ (1)
- (9)
- 2.3      2.3.1      (a) Age✓ (1)
- (b) Fertility✓ in men (1)
- 2.3.2      They determined the:  
                         - sperm count✓/number of normal sperm per ml of semen  
                         - progressive motility✓/ability of sperm to swim effectively in a  
                         straight line  
                         - sperm necrosis✓/immature or dead sperm per fresh semen  
                         sample (3)
- (Mark first THREE only)**
- 2.3.3      - The investigation was conducted from 1999 to 2017✓/over 18  
                         years  
                         - 1 294 men✓ were tested (2)
- (Mark first TWO only)**
- 2.3.4      - So that age will be the only independent variable✓  
                         - since high temperature can affect fertility✓/sperm count /sperm  
                         motility/ sperm necrosis  
                         - therefore, decreasing the validity✓ of the investigation (3)
- (10)

2.4	2.4.1	(a) Mitochondria✓	(1)
		(b) Acrosome✓	(1)
	2.4.2	Seminiferous tubules✓	(1)
	2.4.3	(a) - It fuses with the nucleus of the ovum✓ to form the zygote✓ - It carries genetic material✓/DNA/chromosomes which is transferred to the offspring✓ - Contains haploid number of chromosomes✓ which contributes to the formation of a diploid cell✓	Any (1 x 2) (2)
		(b) - It contains enzymes✓ that digest the outer membrane of the ovum✓	(2)
	2.4.4	- Organelles in part <b>B</b> release energy✓ which enables movement✓ of part <b>C</b>	(2)
	2.4.5	5 (mm/minute) x 45 (minutes)✓ = 225✓ mm	(2) <b>(11)</b>
2.5	2.5.1	(a) Auditory nerve✓	(1)
		(b) Cochlea✓	(1)
	2.5.2	(a) Absorbs (excess) pressure waves✓ from the inner ear/prevents echo	(1)
		(b) Equalises pressure on either side of the tympanic membrane✓	(1)
	2.5.3	- The person will suffer from hearing loss✓*/be deaf because - no/less vibrations will be transmitted to the oval window✓ and - no/less pressure waves will form in the cochlea✓/inner ear - Therefore, there will be less/no stimulation of the organ of Corti✓/ hair cells - Less/no impulses will reach the cerebrum✓	Compulsory mark✓* + Any 3 (4) <b>(8)</b>
2.6		- Cristae✓ - are stimulated by a change in speed/direction of (movement) of the head✓ - Maculae✓ - are stimulated by a change in the position of the head✓ - to generate an impulse✓ - which is transmitted by the auditory nerve✓ - to the cerebellum✓ for interpretation	Any (6) <b>[50]</b>

**QUESTION 3**

3.1	3.1.1	(a) Blind spot✓	(1)
		(b) Cornea✓	(1)
		(c) Sclera✓	(1)
	3.1.2	- Radial muscles contract✓ and - circular muscles relax✓ - The pupil widens✓/dilates - More light enters the eye✓	(4)
	3.1.3	Accommodation✓	(1)
3.2	3.1.4	- It is more convex✓ - so that light rays are refracted (bent) more✓ - to focus on the retina✓ /to form a clear image on the retina	(3) <b>(11)</b>
	3.2.1	- The pathway along which impulses are transmitted✓ - to bring about a reflex action✓	(2)
	3.2.2	(a) Guillain-Barre syndrome✓ <b>(Mark first ONE only)</b>	(1)
		(b) Damage to the motor neurons✓ <b>(Mark first ONE only)</b>	(1)
		(c) The skeletal muscles have a decreased reflex response✓ <b>(Mark first ONE only)</b>	(1)
	3.2.3	- In hyporeflexia damage is between the spinal cord and the skeletal muscles✓ while - in hyperreflexia damage is between the brain and the spinal cord✓ <b>(Mark first ONE only)</b>	(2)
	3.2.4	Myelin sheath✓	(1)
	3.2.5	- Axon is no longer insulated✓ - This causes the speed of transmission of nerve impulses to decrease✓ - which can lead to a delayed response✓ and - therefore, loss of muscle control✓	(3) <b>(11)</b>

Any



3.3	3.3.1	(a) - Insulin✓ - Glucagon✓ <b>(Mark first TWO only)</b>	(2)
		(b) Pancreas✓	(1)
	3.3.2	08:00 and 09:00✓	(1)
	3.3.3	- Blood glucose levels increased✓ - to above 7,1✓mmol/L to 8,4 mmol/L	(2)
	3.3.4	- Blood glucose levels decreased to below 3,9✓ mmol/L at 14:00 - stimulating the Islets of Langerhans✓ /pancreas - to secrete glucagon✓ - which stimulates the conversion of glycogen to glucose✓ - therefore, increasing blood glucose levels✓ at 15:00	Any (4)
	3.3.5	- Levels would have remained high✓ - for a longer period✓	(2) <b>(12)</b>
3.4	3.4.1	Adrenal✓ gland	(1)
	3.4.2	On top of the kidneys✓	(1)
	3.4.3	- It stimulates the breathing muscles✓ - and this increase the rate/depth of breathing✓ so that - more oxygen is inhaled✓ - It stimulates the heart✓ muscle - causing an increase in heart rate✓/blood pressure so that - oxygen and glucose are transported faster✓	Any (5) <b>(7)</b>
3.5	3.5.1	(a) Geotropism✓/Gravitropism	(1)
		(b) Auxins✓	(1)
	3.5.2	- Due to gravity✓ - there is a higher concentration of auxins on the lower side✓ of the root - which inhibits growth✓ - Therefore, growth will occur mainly on the upper side✓ - causing the root to bend/grow downwards✓	(5)
	3.5.3	- The seedling must be rotated constantly✓ - to remove the effect of gravity✓	(2) <b>(9)</b> <b>[50]</b>

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