



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

LIFE SCIENCES P1

2022

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 8 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	B✓✓		
	1.1.3	D✓✓		
	1.1.4	C✓✓		
	1.1.5	B✓✓		
	1.1.6	A✓✓		
	1.1.7	B✓✓		
	1.1.8	B✓✓		
	1.1.9	C✓✓	(9 x 2)	(18)
1.2	1.2.1	Round window✓/ Fenestra rotunda		
	1.2.2	Acrosome✓		
	1.2.3	Fallopian tube✓		
	1.2.4	Astigmatism✓		
	1.2.5	Optic✓ nerve		
	1.2.6	Alzheimer's✓ disease		
	1.2.7	Endometrium✓		
	1.2.8	Blastula✓/blastocyst		
	1.2.9	Puberty✓		
	1.2.10	Binocular✓ /stereoscopic vision	(10 x 1)	(10)
1.3	1.3.1	A only✓✓		
	1.3.2	B only✓✓		
	1.3.3	B only✓✓	(3 x 2)	(6)
1.4	1.4.1	(a) Accommodation✓		(1)
		(b) Pupillary mechanism✓/Pupillary reflex		(1)
	1.4.2	(a) B✓ and D✓ (Mark first TWO only)		(2)
		(b) A✓ and B✓ (Mark first TWO only)		(2)
	1.4.3	(a) C✓ and D✓ (Mark first TWO only)		(2)
		(b) A✓ and C✓ (Mark first TWO only)		(2) (10)
1.5	1.5.1	(a) Myelin sheath✓		(1)
		(b) Axon✓		(1)
	1.5.2	(a) A✓		(1)
		(b) C✓		(1)
	1.5.3	D✓ Synapse✓		(2) (6)
TOTAL SECTION A:				50

SECTION B**QUESTION 2**

2.1	2.1.1	Cerebellum✓		(1)
	2.1.2	- Higher thought processes✓/(intelligence/memory/reasoning) - Interpretation of all senses✓ - Controls all voluntary actions✓	Any	(2)
		(Mark first TWO only)		
	2.1.3	(a) Growth hormone✓/GH		(1)
		(b) Prolactin✓		(1)
	2.1.4	- Meninges✓ - Cranium✓	Any	(1)
		(Mark first ONE only)		
	2.1.5	- It receives✓/ interprets impulses - from receptors✓ in the skin and - sends impulses to the blood vessels of the skin✓/ influences blood flow to the skin and - the sweat glands✓/influences sweat secretion		(4)
	2.1.6	(a) Carotid artery✓		(1)
		(b) Heart✓ muscle - Diaphragm✓ - Intercostal muscles✓ } /Breathing muscles✓	Any	(2)
		(Mark first TWO only)		(13)
2.2	2.2.1	Vas deferens✓		(1)
	2.2.2	- Sperm storage✓ - Sperm maturation✓	Any	(1)
		(Mark first ONE only)		
	2.2.3	- The semen will not contain sperm✓ because - they are not transported✓ - but will contain all other secretions of the accessory glands✓/ examples thereof - the vasectomy occurred before✓ the accessory glands	Any	(3)
	2.2.4	- The temperature of the testes inside the body will be too high✓ - No/abnormal sperm will be produced✓ - The man will be infertile✓/not able to reproduce		(3)
	2.2.5	- Under the influence of testosterone✓ - diploid cells✓/germinal epithelial cells - in the seminiferous tubules✓/testes - undergo meiosis✓ - to form haploid sperm cells✓	Any	(4)
				(12)

2.3 **Protection**

- The (amniotic) egg is retained inside the mother's body✓*
- to protect the embryo from predators✓
- The allantois✓ protects the embryo
- by removing waste products✓
- The embryo is protected from shocks✓/sudden changes in temperature/dehydration by the:
 - Chorion✓
 - Amnion✓
 - Amniotic fluid✓ inside the amniotic membrane
 - Shell✓/outer covering
 - Air pocket✓

Compulsory 1* + Any 4 5

Nourishment (N)

- The embryo receives nutrients✓
- from the egg yolk✓ in the yolk sac
- and from the albumen✓

Any 2 2
(7)

- 2.4 2.4.1 $71.53 - 34.72✓ = 36.81✓$ ml/h (2)
- 2.4.2
- The high level of ADH✓ at night
 - Increases the permeability of the renal tubules✓/collecting duct/distal convoluted tubules in the kidney
 - More water is re-absorbed✓/less water is excreted
 - Less urine is produced✓ (4)
- 2.4.3
- Less urine produced✓/more water is retained
 - A person will not need to urinate often✓/ will not be thirsty/sleep will not be interrupted (2)
- 2.4.4
- Water will not be reabsorbed from the renal tubules✓
 - The volume of water in the blood will be low✓
 - The pituitary gland will be stimulated✓
 - to release more ADH✓ all the time Any (3)
(11)
- 2.5 2.5.1
- Caffeine✓
 - Nicotine✓ (2)
- (Mark first TWO only)**
- 2.5.2
- The bitter taste✓ will prevent herbivores✓ from feeding on them
 - The caffeine will kill pathogenic fungi✓protecting the plants from disease✓/death Any (2 x 2) (4)
- (Mark first TWO only)**
- 2.5.3 Thorns✓ (1)
(Mark first ONE only)
- (7)**
[50]

QUESTION 3

- 3.1 - Auxins move away from light✓
 - There is a higher concentration of auxins on the dark side of the stem✓
 - Growth is stimulated✓ on the dark side which
 - grows faster✓
 - causing the stem to grow/bend towards the light✓ **(5)**
- 3.2 3.2.1 - Must have regular menstrual cycles✓
 - They must not become pregnant✓
 - Diet Any **(2)**
(Mark first TWO only)
- 3.2.2 - 250 females per group were used✓/1000 females participated
 - Measurement was done for 5 cycles✓ **(2)**
(Mark first TWO only)
- 3.2.3 Older groups of women have a higher (average) FSH level than the younger groups✓✓
OR
 Younger groups of women have a lower (average) FSH level than the older groups✓✓ **(2)**
(Mark first ONE only)
- 3.2.4 - The Graafian/developing follicles secretes oestrogen✓
 - but since the number of follicles are low✓/depleted
 - less/no oestrogen will be secreted✓ **(3)**
- 3.2.5 - A high concentration of progesterone✓
 - inhibits the pituitary gland✓/results in reduced FSH secretion
 - This will decrease the validity of the investigation✓ Any **(3)**
(12)
- 3.3 - After implantation the chorion✓
 - develops many finger-like outgrowths✓
 - called chorionic villi✓
 - The endometrium✓
 - together with the chorionic villi forms the placenta✓
 - The umbilical artery✓
 - and the umbilical vein✓ develops
 - inside a hollow tube✓
 - to form the umbilical cord between the foetus and the placenta✓ Any **(6)**
- 3.4 3.4.1 (a) Auditory canal✓ **(1)**
 (b) Ossicles✓ **(1)**

3.4.2	- Collects the sound waves✓ - Directs the sound waves towards the auditory canal✓ (Mark first ONE only)	Any	(1)
3.4.3	- Part D/the ossicles do not vibrate freely✓ - Fewer/no vibrations will be sent to the oval window✓/inner ear - Fewer/no pressure waves will be set up in the cochlea✓ - The receptors/organ of Corti will be stimulated less✓/not stimulated - The cerebrum is stimulated differently✓/not stimulated - which leads to hearing loss✓	Any	(4)
3.4.4	- It equalises pressure✓ - on either side of the tympanic membrane✓		(2)
3.4.5	Grommet✓		(1)
3.4.6	C✓		(1)
3.4.7	- The cristae are stimulated✓ - to convert the stimuli to impulses✓ - The impulses are sent to the cerebellum✓ - where they are interpreted✓ - The cerebellum sends impulses to the skeletal muscles✓ to maintain balance	Any	(4) (15)
3.5	3.5.1	Islets of Langerhans✓	(1)
	3.5.2	(a) - Type I✓ - No insulin will be produced✓ - The presence of GAD-antibodies indicates that pancreas cells are being destroyed✓ (b) - Type I✓ - A lower than normal C-peptide level indicates that the insulin producing cells of the pancreas was destroyed✓ - therefore no insulin will be produced✓	(3) (3)
	3.5.3	- The insulin levels will remain high✓ because - the blood glucose levels remain high✓ - the pancreas will continue secreting insulin✓	(3)
	3.5.4	- The glucose cannot be absorbed into the cells✓ - therefore it cannot be used in cellular respiration✓/ to release energy	(2) (12) [50]
TOTAL SECTION B:			100
GRAND TOTAL:			150