



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS

LIFE SCIENCES P1

2023

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	D✓✓		
	1.1.2	B✓✓		
	1.1.3	A✓✓		
	1.1.4	B✓✓		
	1.1.5	B✓✓		
	1.1.6	A✓✓		
	1.1.7	C✓✓		
	1.1.8	B✓✓		
	1.1.9	C✓✓		
	1.1.10	B✓✓	(10 x 2)	(20)
1.2	1.2.1	Homeostasis✓		
	1.2.2	Mitochondria✓		
	1.2.3	Alzheimer's✓ disease /dementia		
	1.2.4	Choroid✓		
	1.2.5	Precocial✓ development		
	1.2.6	Islets of Langerhans✓		
	1.2.7	Acrosome✓		
	1.2.8	Umbilical artery✓	(8 x 1)	(8)
1.3	1.3.1	Both A and B✓✓		
	1.3.2	None✓✓		
	1.3.3	B only✓✓	(3 x 2)	(6)
1.4	1.4.1	(a) Peripheral✓ nervous system		(1)
		(b) Autonomic nervous system✓		(1)
	1.4.2	Spinal✓ nerves		(1)
	1.4.3	E✓ - Parasympathetic nervous system✓		(2)
	1.4.4	Neurons✓		(1)
	1.4.5	- Meninges✓ - Cranium✓/bone tissue - Cerebrospinal fluid✓	Any	(2)
		(Mark first TWO only)		(8)
1.5	1.5.1	Semi-circular canals✓		(1)
	1.5.2	Ossicles✓		(1)
	1.5.3	(a) D✓ - Eustachian tube✓		(2)
		(b) C✓ - Oval window✓		(2)
	1.5.4	(a) Maculae✓		(1)
		(b) Cristae✓		(1)
				(8)

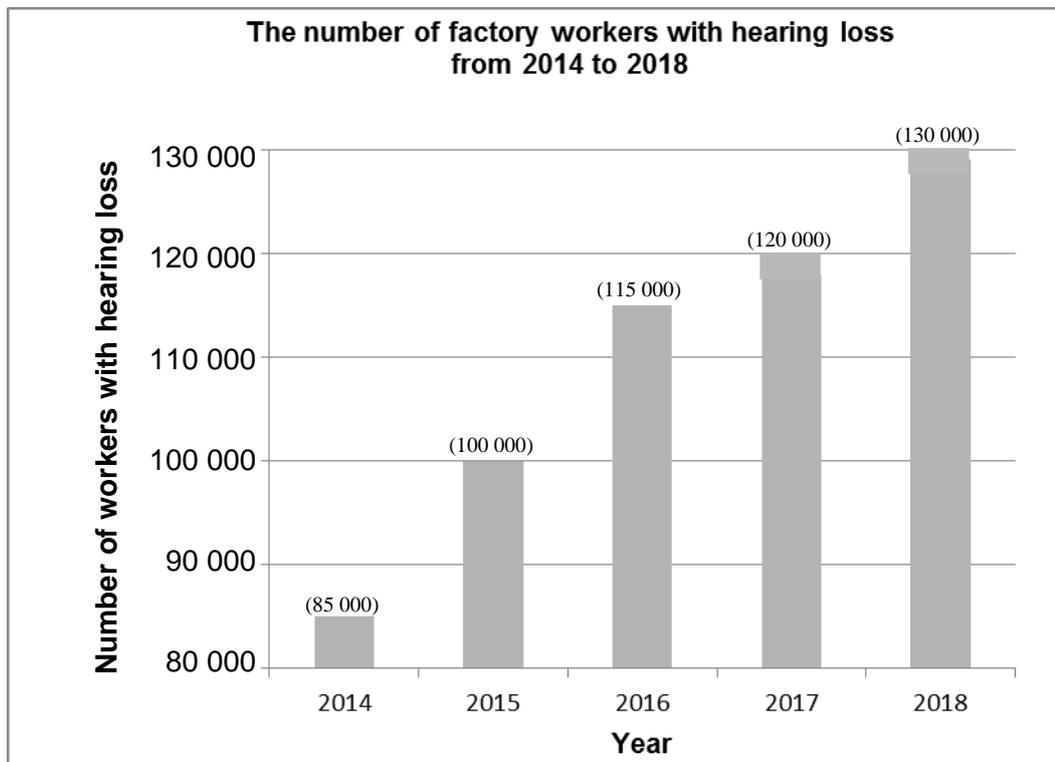
TOTAL SECTION A: 50

SECTION B**QUESTION 2**

2.1.1	Endometrium✓		(1)
2.1.2	Fertilisation✓		(1)
2.1.3	The (nucleus of the) sperm fuses with (the nucleus of) the ovum✓		(1)
2.1.4	<ul style="list-style-type: none"> - Zygote divides by mitosis✓ - to form a (solid) ball of cells✓ - called the morula✓ - which develops into a hollow ball of cells✓ - called the blastula✓/blastocyst 	Any	(4)
2.1.5	<ul style="list-style-type: none"> - It is muscular✓ <li style="padding-left: 20px;">to protect the foetus from mechanical injury✓/to allow for parturition/birth - It is flexible✓/can expand <li style="padding-left: 20px;">to accommodate the growing foetus✓ - It is hollow✓ <li style="padding-left: 20px;">to accommodate the growing foetus✓ - The thickened endometrium✓ <li style="padding-left: 20px;">allows for implantation✓ /survival of the embryo <p>(Mark first TWO only)</p>	Any (2 x 2)	(4)
2.1.6	<ul style="list-style-type: none"> - The secretion is alkaline✓ which - neutralises the acidic conditions✓ of the vagina 		(2) (13)
2.2	2.2.1	<ul style="list-style-type: none"> - Stimulates the development of ovarian follicles✓ - Initiates puberty✓ <p>(Mark first ONE only)</p>	Any (1)
	2.2.2	- LH✓/Luteinising Hormone	(1)
	2.2.3	<ul style="list-style-type: none"> - LH stimulates ovulation✓ - therefore, ovulation will not take place✓ - There will be no ovum to fertilise✓ 	Any (2)
	2.2.4	<ul style="list-style-type: none"> - A Graafian follicle is not formed✓ - Since the Graafian follicle secretes oestrogen✓ - oestrogen levels will be reduced✓ therefore - the endometrium will not develop✓/ thicken - and no implantation can take place✓ <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> - There is no ovum produced✓/a Graafian follicle is not formed - Ovulation does not occur✓ - No fertilisation✓ occurs and - a zygote is not formed✓ - and no implantation can take place✓ 	(5) (9)

- 2.3
- Under the influence of testosterone✓
 - diploid cells✓/germinal epithelium cells
 - in the seminiferous tubules✓of the testis
 - undergo meiosis✓ to form
 - haploid sperm✓
- Any (4)
- 2.4
- 2.4.1 External✓ fertilisation (1)
- 2.4.2
- To increase the chances of fertilisation✓
 - since the gametes may be lost✓/not reach one another due to predation✓/water currents
- OR**
- To produce more zygotes✓/offspring
 - since many will be lost✓
 - because they are preyed on✓/washed away/dry out
- (3)
- 2.4.3 The embryos develop inside an egg, outside the female's body✓ (1)
(5)
- 2.5
- 2.5.1
- It has a duct✓
 - The secretion is released externally✓/not released into blood
 - It secretes sweat✓/It does not secrete a hormone
- Any (2)
(Mark first TWO only)
- 2.5.2
- They receive stimuli✓ from the environment
 - and convert them to nerve impulses✓
- (2)
- 2.5.3
- More blood flows to the surface of the skin✓ to allow more heat to be lost✓
- OR**
- More blood flows to the sweat glands✓ to increase the production of sweat✓
- (2)
(6)
- 2.6
- 2.6.1 Cochlea✓ (1)
- 2.6.2
$$\left[\frac{(130\,000 - 85\,000)}{85\,000} \right] \times 100 = 52,94\%$$
 (3)
- 2.6.3
- More factories✓ were built increase in supply & demand
 - More workers✓ were employed
 - Extended exposure to loud sounds✓
 - Lack of precautionary measures✓
- Any (1)
(Mark first ONE only)
- 2.6.4
- The impulse will not be transmitted to the cerebrum✓
 - and will not be interpreted✓
- (2)

2.6.5

**Criteria for marking graph:**

Criteria	Mark allocation
Type: Bar graph is drawn (T)	1
Caption of the graph includes both variables (C)	1
Correct labels on X-axis and Y-axis (L)	1
Correct scale for Y-axis Equal width of bars and spaces (S)	1
Plotting: (P)	
1- 4 co-ordinates are plotted correctly	1
All 5 co-ordinates are plotted correctly	2

(6)
(13)
[50]

Histogram or line graph drawn

- Lose marks for type of graph and for scale

Transposed axes:

- Can get full credit if axes labels are also swapped and bars are horizontal
- If labels are *not* corresponding, then lose marks for labels and scale
- Check that the plotting is correct for the given labels

QUESTION 3

- 3.1 3.1.1 November✓ (1)
- 3.1.2 - The concentration of abscisic acid increases✓
- To stimulate the abscission✓/falling of leaves
- To prepare the tree for dormancy✓ (3)
- 3.1.3 - Less sunlight✓/ less water/ cold conditions therefore
- Decreased photosynthesis✓/ reduced transpiration/ lower energy demand/ low growth rate Any (1 x 2) (2)
(Mark first ONE only) (6)
- 3.2 3.2.1 - Auxins promote the development of roots✓
- It brings about (general) root growth✓ causing their downward✓growth/positive geotropism (3)
- 3.2.2 - In the stem, the auxins stimulate growth✓ on the lower side causing the stem to grow/bend upwards✓
- In the root, the auxins inhibit growth✓ on the lower side causing the root to grow/bend downwards✓ (4)
(7)
- 3.3 3.3.1 Adrenal✓ gland (1)
- 3.3.2 (a) Aldosterone level✓/ increased aldosterone level (1)
(b) Blood pressure✓ (1)
- 3.3.3 - 1 688 volunteers were used✓
- The procedure was done 4 times for each individual✓ (2)
(Mark first TWO only)
- 3.3.4 - All factors should be kept constant✓/there should be only one independent variable to ensure the validity✓ of the investigation
- Dietary factors✓/examples can also influence the blood pressure✓ (2 x 2) (4)
(Mark first TWO only)
- 3.3.5 To compare the blood pressure before and after the administration of aldosterone✓✓ (2)
- 3.3.6 - The high aldosterone✓ level
- will increase the permeability of the renal tubules✓ for salt
- More salt will be reabsorbed✓ (3)
(14)

3.4	- Adrenalin causes glycogen to be converted to glucose✓ which - increases the blood glucose level✓ - The breathing muscles are stimulated✓ - to increase the rate and depth of breathing✓ - The heart muscle is stimulated✓ - to pump faster✓ - There is also an increase in blood pressure✓ - increasing the transport of oxygen and glucose✓ - The rate of cellular respiration is increased✓	Any	(8)
3.5	3.5.1 Iris✓		(1)
	3.5.2 - Helps to maintain the shape of the eye✓ - Plays a role in refraction of light✓ - Allows the transmission of light✓ - Prevents desiccation✓ of structures in the eye - Holds the retina in position✓ - Nourishment✓ of the eye - Prevents mechanical injury✓ in the eye	Any	(2)
	(Mark first TWO only)		
	3.5.3 - Area B contains (a high concentration of) photoreceptors✓/ cones - Area C contains no photoreceptors✓/ no rods & cones		(2)
	3.5.4 Astigmatism✓		(1)
	3.5.5 - Because the lens will become cloudy✓/opaque - no/less light will enter the eye✓ - causing no sight ✓/weak sight		(3)
	3.5.6 - The ciliary muscle contracts✓ - The ciliary body moves closer to the lens✓ - The suspensory ligaments slacken✓ - Tension on the lens decreases✓ - The lens becomes more convex✓/rounded - Light rays are refracted more✓ - To focus the light on the retina✓	Any	(6) (15) [50]
		TOTAL SECTION B:	100
		GRAND TOTAL:	150