



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

LIFE SCIENCES P1

NOVEMBER 2023

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist 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 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	D✓✓		
	1.1.3	A✓✓		
	1.1.4	C✓✓		
	1.1.5	C✓✓		
	1.1.6	B✓✓		
	1.1.7	A✓✓		
	1.1.8	B✓✓		
	1.1.9	A✓✓		
	1.1.10	C✓✓	(10 x 2)	(20)
1.2	1.2.1	Vivipary✓		
	1.2.2	Urethra✓		
	1.2.3	Peripheral✓ nervous system		
	1.2.4	Glycogen✓		
	1.2.5	Placenta✓		
	1.2.6	Choroid✓		
	1.2.7	Myelin sheath✓		
	1.2.8	Epididymis✓	(8 x 1)	(8)
1.3	1.3.1	B only✓✓		
	1.3.2	Both A and B✓✓		
	1.3.3	A only✓✓	(3 x 2)	(6)
1.4	1.4.1	(a) Semi-circular canals✓		(1)
		(b) Round window✓		(1)
	1.4.2	(a) D✓ Eustachian tube✓		(2)
		(b) C✓ Cochlea✓		(2)
	1.4.3	(a) F✓		(1)
		(b) A✓		(1)
				(8)
1.5	1.5.1	(a) Zygote✓		(1)
		(b) Morula✓		(1)
		(c) Blastocyst✓/blastula		(1)
	1.5.2	(a) Fertilisation✓		(1)
		(b) Endometrium✓		(1)
	1.5.3	Mitosis✓		(1)
	1.5.4	23✓		(1)
	1.5.5	Chorion✓		(1)
				(8)

TOTAL SECTION A: 50

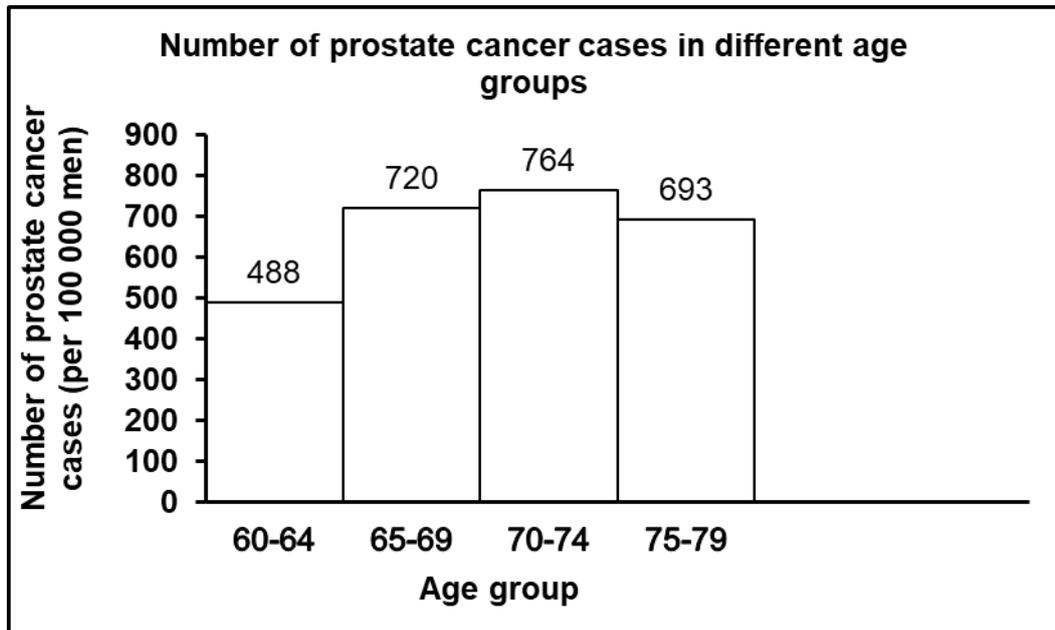
SECTION B**QUESTION 2**

- 2.1 2.1.1 External✓ fertilisation (1)
- 2.1.2 - The eggs will dry out✓
- because they have no shells✓/are not amniotic eggs /have no amnion (2)
- 2.1.3 - The male and female bodies are in close contact✓
so that sperm can be released directly onto the ova✓
- OR**
- Many/up to 6 000 ova are released✓
since fertilisation is external✓
(Mark the first ONE only) Any (1 x 2) (2)
- 2.1.4 - Many/up to 6 000 ova are released✓
since fertilisation is external✓/increasing the chance that some
will be fertilised
- OR**
- The male and female bodies are in close contact✓
so that sperm can be released directly onto the ova✓
(Mark the first ONE only) Any (1 x 2) (2)
- (7)**
- 2.2 2.2.1 (a) Seminal vesicle✓ (1)
- (b) Testosterone✓ (1)
- 2.2.2 - It is alkaline✓
to neutralise the acidic conditions of the vagina✓
- It contains mucus✓/provides medium
to facilitates the movement of the sperm✓
- It contains nutrients✓
to supply the sperm with energy✓ Any (1 x 2) (2)
- (Mark first ONE only)**

2.2.3 (a) (70 – 74) ✓

(1)

(b)



Criteria for marking of the graph:

Criteria	Mark allocation
Histogram is drawn (T)	1
Caption of the graph includes both variables (C)	1
Correct labels on the X-axis and Y-axis with correct unit on the Y-axis (L)	1
Correct scale for Y-axis and bars of equal width with no spaces for X-axis (S)	1
Plotting (P) correctly done for: 1- 3 age groups	1
All 4 required age groups only	2

(6)
(11)

If a bar graph or line graph is drawn, marks will be lost for:

- Type of graph
- Scale

If axes are transposed:

- Can get all marks if labels are also swapped and bars are horizontal
- If labels are not corresponding, then:
 - Marks will be lost for labels and scale
 - Plotting can get credit if coordinates are correct for given labels

2.3 2.3.1 (a) - (Graafian) follicle ✓ and
- Corpus luteum ✓
(Mark first TWO only)

(2)

(b) - (Intense) pain ✓
- Internal bleeding ✓
(Mark first TWO only)

(2)

- 2.3.2 (a) FSH✓ (1)
(b) Oestrogen✓
- OR**
- LH✓
- OR**
- FSH✓ (1)
- 2.3.3 The Graafian follicle keeps on producing oestrogen✓/fails to rupture
- OR**
- The increased secretion of oestrogen stimulates the secretion of LH✓
- OR**
- Excess production of FSH can cause the failure to ovulate✓/ Graafian follicle to rupture (1)
- 2.3.4 - The corpus luteum does not degenerate✓ and
- keeps on secreting progesterone✓
- This will inhibit the pituitary gland✓
- from secreting FSH✓
- Therefore no follicle will develop✓ and
- no ovulation✓ will take place Any (5)
(12)
- 2.4 2.4.1 (a) Spinal cord✓ (1)
(b) Pituitary gland✓/hypophysis (1)
- 2.4.2 A✓ (1)
- 2.4.3 Between the two hemispheres of the cerebrum✓✓ (2)
- 2.4.4 (a) - Part **D**/ medulla oblongata which controls breathing✓
- was not injured✓ (2)
- (b) - The learner (occasionally) lost balance✓
- due to no coordination of voluntary movements✓ by part **B** (2)
- (c) - The loss of memory indicates a possible injury to part **A**✓/the cerebrum
- which is also responsible for hearing ✓/ (interpretation of) sound (2)
(11)
- 2.5 2.5.1 - A rapid involuntary/automatic response✓
- to a stimulus✓ (2)
- 2.5.2 (a) It ensures that the impulse is transmitted in one direction✓
(Mark first ONE only) (1)
- (b) It is important for balance✓/movement (1)

- 2.5.3 - The impulse is transmitted from the receptors in the patellar tendon✓ through the
 - sensory neuron✓ and the
 - synapse✓ to the
 - motor neuron✓ and to the
 - quadriceps✓ muscle (5)
(Correct sequence is required) (9)
[50]

QUESTION 3

- 3.1 3.1.1 - Degeneration✓/wasting away of nerve tissue
 - Plaque/proteins formed around the nerve tissue✓ Any (1)
(Mark first ONE only)
- 3.1.2 (a) Worsening ability to remember new information✓ (1)
(Mark first ONE only)
- (b) Family history✓ (1)
- (c) - Learning ability✓
 - Orientation✓ (2)
(Mark first TWO only)
- 3.1.3 They:
 - Were all females✓/considered gender
 - Were between the ages of 65 and 75✓/considered age group/age
 - Did not show symptoms of Alzheimer's disease✓ Any (2)
(Mark first TWO only)
- 3.1.4 They:
 - Used 37 participants✓
 - Conducted the investigation three times a week✓
 - Conducted the investigation for three months✓ Any (2)
(Mark first TWO only)
- 3.1.5 - Investigation did not establish the relationship between exercise and development of Alzheimer's disease✓
 - since no changes in the nervous tissue were measured✓/ period was short
OR
 - There was no control group✓
 - to show that it is the exercise that improve blood flow✓/higher order-thinking abilities
OR
 - People who did not show symptoms of Alzheimer's disease were used✓
 - therefore, results do not show prevention of development of Alzheimer's disease✓ Any (1 x 2) (2)

- 3.1.6 - Exercise can improve blood flow to the brain✓ and
 - it can maintain the volume of the hippocampus✓ which will
 - prevent a decrease in higher order thinking✓/cognitive abilities/learning abilities (3)
(14)
- 3.2 3.2.1 (a) Kidney✓ (1)
 (b) Endocrine✓ system (1)
- 3.2.2 - It releases hormones✓
 - directly into the blood✓/and it is ductless (2)
(Mark first TWO only)
- 3.2.3 - Low salt levels are detected by receptor cells✓ in the kidney
 - Adrenal glands are stimulated✓ to secrete
 - more aldosterone✓
 - which stimulates the renal tubules✓
 - to be more permeable to salt✓
 - This increases the reabsorption of salt✓ and
 - the salt levels in the blood increase✓/return back to normal
 Any (5)
- 3.2.4 - The secretion of ADH✓
 - will increase✓
 - which will increase the permeability✓
 - of the renal tubules✓ in **X**
 - so that more water is reabsorbed✓ from the filtrate (5)
(14)
- 3.3 3.3.1 (a) Thermoregulation✓ (1)
 (b) Hypothalamus✓ (1)
- 3.3.2 (a) Sweat gland✓ (1)
 (b) Capillary✓/blood vessel (1)
- 3.3.3
$$\frac{(37,4 - 35,4)}{37,4} \} \checkmark \times 100 \checkmark = 5,35 \checkmark \%$$
 (3)
- 3.3.4 - Skin temperature decreased✓/lowers from 37,4 °C to 35,4 °C
 - because part **Q** dilated✓/vasodilated
 - causing more blood to flow to the (surface of the) skin✓ and
 - part **P** became (more) active✓/produced more sweat
 - causing more heat to be lost✓ to the environment
 - through evaporation✓/ radiation/ convection (6)
(13)

3.4	3.4.1	(a) (Presence/absence of) auxins✓	(1)
		(b) Growth of lateral branches✓	(1)
	3.4.2	- To ensure that the results are caused only by the presence of auxins✓ which - increases the validity✓ of the investigation	(2)
	3.4.3	- It acts as a control✓ - to show that the results of Plant D ✓ - are caused by the (presence of) auxins✓ - and not the agar jelly✓	Any (3)
	3.4.4	The presence of auxins slows down the growth of lateral branches✓✓	
		OR	
		The absence of auxins stimulated the growth of lateral branches✓✓	(2)
			(9)
			[50]
		TOTAL SECTION B:	100
		GRAND TOTAL:	150