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.

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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.

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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.

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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✓ Any (1 x 2) (2)
(Mark the first ONE only)

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)

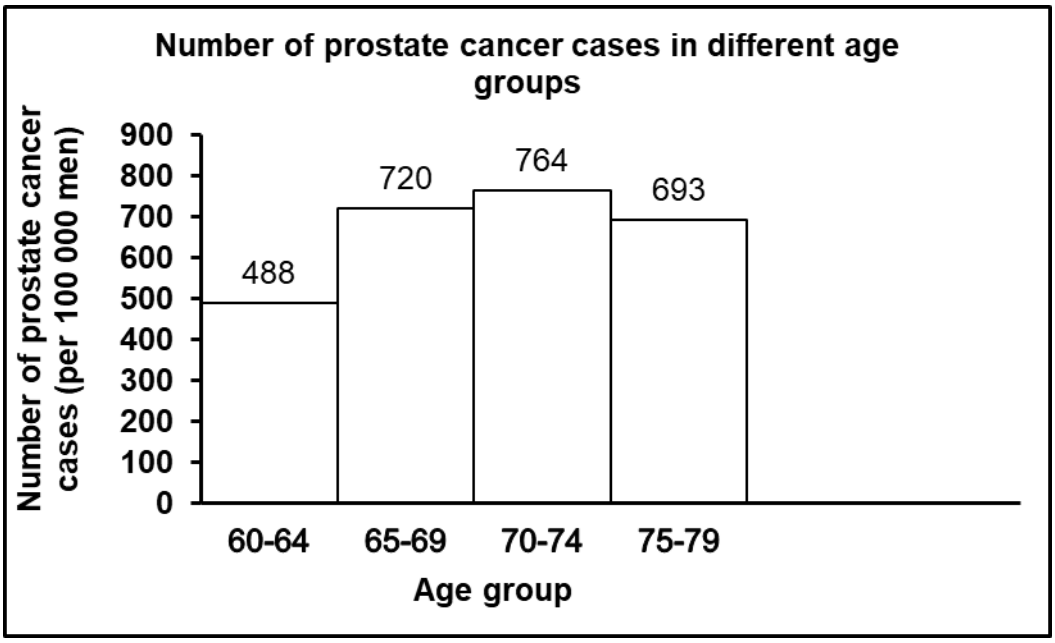
2.2 2.2.1 (a) Seminal vesicle✓ (1)

(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 All 4 required age groups **only**	 1 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 swopped 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✓ (2)
(Mark first TWO only)

(b) - (Intense) pain✓
- Internal bleeding✓ (2)
(Mark first TWO only)

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✓ (1)
(Mark first ONE only)

(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 $\frac{(37,4 - 35,4)}{37,4}$ ✓ x 100✓ = 5,35✓% (3)

3.3.4
- Skin temperature decreased✓/lowers from 37,4 ºC to 35,4 ºC
- 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**

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