FINAL

KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12



MARKS: 50

This marking guideline consists of 6 pages

PRINCIPLES RELATED TO MARKING LIFE SCIENCES MARCH 2025

1. **If more information than marks allocated is given**
   Stop marking when maximum marks are 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 part of it is required**
   Read all and credit relevant part.

4. **If comparisons are asked for and descriptions are given**
   Accept if 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 is incorrect, do not credit. If sequence and links becomes correct again, resume credit.

9. **Non-recognised abbreviations**
   Accept if first defined in answer. If not defined, do not credit the unrecognized abbreviation but credit the rest of answer if correct.

10. **Wrong numbering**
    If answer fits into the correct sequence of questions but the wrong number is given, it is acceptable.

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11. **If language used changes the intended meaning**
    Do not accept.

12. **Spelling errors**
    If recognizable accept provided it does not mean something else in Life Sciences or if it is out of context.

13. **If common names given in terminology**
    Accept provided it was accepted at the National memo discussion meeting.

14. **If only letter is asked for and only name is given (and vice versa)**
    No 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 appears 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.

SECTION A

QUESTION 1

1.1 1.1.1 B✓✓
1.1.2 D✓✓
1.1.3 C✓✓
1.1.4 D✓✓

(4 x 2) **(8)**

1.2 1.2.1 Luteinising hormone✓ / LH
1.2.2 Non-disjunction✓
1.2.3 Cytokinesis✓

(3 x 1) **(3)**

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1.3 1.3.1 A only✓✓
1.3.2 B only✓✓

(2 x 2) **(4)**

1.4.1 (a) Centromere✓ (1)
(b) Chromatid✓ (1)

1.4.2 (a) Crossing over✓ (1)
(b) Metaphase 1✓ (1)

1.4.3 1✓ (1)
(5)

TOTAL SECTION A: 20

SECTION B

QUESTION 2

2.1 2.1.1 (a) tRNA✓ (1)

(b) mRNA✓ (1)

2.1.2 Translation✓ (1)

2.1.3 GAA✓ (1)

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2.1.4 - Brings specific amino acids✓
- to the ribosome✓
- For the formation of the required protein✓ (3)

2.1.5
- Different protein will be formed✓
- since anticodon GGA✓/ DNA triplet GGA
- changed to GUA✓/ DNA triplet GTA
- and amino acid tyrosine✓
- will be replaced by serine✓ in a protein

OR

- Different / same protein will be formed✓
- Since anticodon GGA will change✓
- to anticodon GUA✓
- Bringing different / same amino acid✓ Any (3)

(10)

2.2 2.2.1 Man 2✓ (1)

2.2.2
- Some(three) black bars of Susan's DNA profile correspond with that of the mother✓
- The remaining (two) black bars of Susan's DNA profile correspond with that of Man 2✓ (2)

2.2.3 DNA of each individual is unique, except in the case of identical twins✓ (1)
(Mark the first ONE only)

2.2.4
- To identify criminals✓/ resolve disputes
- To identify organisms from their remains✓/dead bodies
- To identify family relationships other than paternity✓ e.g. siblings
- To diagnose genetic disorders✓
- To establish matching tissues✓/for tissue typing Any (1)

(Mark the first ONE only) **(5)**

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QUESTION 3

3.1 3.1.1 Zinc supplement✓ (1)

3.1.2 50 (healthy) males in each group ✓participated in the investigation (1)
(Mark the first ONE only)

3.1.3
- Type of zinc supplement✓
- Concentration of zinc✓/ Volume of zinc Any (1)

(Mark the first ONE only)

3.1.4
- Group B did not receive the zinc supplement✓
- If testosterone level increases in group A, it will be due to zinc supplement✓ (2)

3.1.5 639.4 – 348.4✓
= 291✓ (2)

(7)

3.2	3.2.1	(a)	Oestrogen✓	(1)
		(b)	Progesterone✓	(1)
	3.2.2		14✓	(1)
	3.2.3		As the structure **C** / corpus luteum degenerates✓ the level of hormone **B** /progesterone decreases✓	(2)
	3.2.4		- There will be no thickening of the endometrium✓ - for the implantation / attachment of embryo✓	(2)
	3.2.5		No inhibition of pituitary gland from producing FSH✓	(1)
			(Mark the first ONE only)	**(8)**

TOTAL SECTION B: 30

GRAND TOTAL: 50

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GRADE 12 Alternatives

Q2.1.5

- The codon CCU code for same amino acid/tyrosine as DNA triplet GGA✓
- The codon CCU changed to codon CAU which code for same amino acid/serine as the DNA triplet GTA✓
- Therefore, the amino acid serine will replace tyrosine✓
- Resulting with the different protein formed✓

Q2.2.3

- DNA cannot be altered✓

Q2.2.4

- Tracing of ancestry✓

Q3.1.2

- 100 men divided into two equal groups✓

Q3.1.4

- To verify that zinc supplement is the only cause of increasing the level of testosterone in group A✓

Q3.2.4

- May results in no stimulation of pituitary gland to release more LH✓
- resulting ovulation not taking place✓

Q3.2.5

- It will result in the endometrium breaking down✓/there will be no further development of the endometrium/endometrium will no longer be maintained.

OR

- FSH level will increase✓
- stopping further thickening of endometrium✓
- Implantation will not take place✓