KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

LIFE SCIENCES

MARCH 2022 COMMON TEST

MARKING GUIDELINE

MARKS: 60

This memorandum consists of 6 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.

14. **If only the letter is asked for, but only the name is given (and vice versa)**
    Do not credit.

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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.

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SECTION A

QUESTION 1

1.1	1.1.1	B✓✓		
	1.1.2	D✓✓		
	1.1.3	C✓✓		
			(3 x 2)	**(6)**
1.2	1.2.1	Double helix✓		
	1.2.2	Hydrogen✓bond		
	1.2.3	Chiasmata✓		
	1.2.4	Amniotic✓ egg		
			(4 x 1)	**(4)**
1.3	1.3.1	None✓✓		
	1.3.2	Both A and B✓✓		
	1.3.3	None✓✓		
			(3 x 2)	**(6)**
1.4	1.4.1	C✓ Centromere✓		(2)
	1.4.2	(a) Interphase✓		(1)
		(b) DNA replication✓		(1)
				(4)

TOTAL SECTION A: 20

SECTION B

QUESTION 2

2.1	2.1.1	(a) Ribosome✓	(1)
		(a) Amino acid✓	(1)
	2.1.2	Transcription✓	(1)
	2.1.3	- Copy the coded message from the DNA molecule✓ - and carry it to the ribosomes✓ - for the synthesis of a required protein✓	(2)
	2.1.4	$\frac{3}{12}$ ✓ X 100✓ = 25✓	(3)

2.1.5 - Each tRNA carries a specific amino acid✓
- When the anticodon on the tRNA✓
- matches the codon on the mRNA✓
- then tRNA brings the required amino acid to the ribosome✓
- Amino acids become attached to each other by peptide bonds✓ (5)
- to form the required protein✓ Any **(13)**

2.2 2.2.1 (a) Chromatid✓ (1)
(b) Cell membrane✓ (1)

2.2.2 (a) Anaphase II✓ (1)
(b) Crossing over✓ (1)

2.2.3 - Metaphase II*✓
- Random arrangement of chromosomes along the equator✓
- singly✓
- Chromosomes attach to the spindle fibres with centromere✓
(*compulsory 1 + Any 2) (3)
(7)
[20]

QUESTION 3

3.1 3.1.1 External✓fertilisation (1)

3.1.2 Oviparous✓ (1)

3.1.3 -Lays eggs✓
-young develop in the egg outside the mother's body✓ (2)

3.1.4 - Prevents drying out of gametes✓
- Allow sperm cells to swim towards eggs cells✓ Any (1)
Mark the first ONE only **(5)**

3.2 3.2.1 (a) Men fertility✓ (1)
(b) Age✓ (1)

3.2.2 No answer

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3.2.3 - Ask the permission from participants✓
- Decide on recording tool✓
- Decide on place for the investigation✓
- Decide on time for the investigation✓
- Decide on sample size✓ Any (2)

Mark the first TWO only

(4)

3.2.4 No answer

3.3 3.3.1 (a) LH✓ (1)
(b) Progesterone✓ (1)

3.3.2 As hormone C/oestrogen increases, the endometrium thickness increases✓✓ (2)

3.3.3 - Since no fertilisation has taken place✓
- Progesterone level in the blood decreases✓
- as corpus luteum degenerates✓
- and no inhibition of pituitary gland✓
- from producing FSH✓/hormone B Any (4)

(8)
[17]

TOTAL SECTION B: 37

GRAND TOTAL: (57)

Use the table below to adjust marks to 60

Marks obtained	
0 - 9	Add 0
10 - 29	Add 1
30 - 48	Add 2
49 -57	Add 3

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