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KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

LIFE SCIENCES
APRIL 2021 COMMON TEST
MARKING GUIDELINE

MARKS: 60

This marking guideline consists of 6 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.

SECTION A**QUESTION 1**

1.1	1.1.1	C✓✓		
	1.1.2	D✓✓		
	1.1.3	B✓✓		
			(3 x 2)	(6)
1.2	1.2.1	Template✓		
	1.2.2	DNA profile✓		
	1.2.3	mRNA✓		
	1.2.4	External✓ fertilisation		
			(4 x 1)	(4)
1.3	1.3.1	B only✓✓		
	1.3.2	A only✓✓		
	1.3.3	A only✓✓		
			(3 x 2)	(6)
1.4	1.4.1	DNA✓		(1)
	1.4.2	-Double stranded✓		
		-Weak hydrogen bonds	Any	(1)
	1.4.3	- Nucleus✓		(2)
		- Mitochondrion✓		(2)
		Mark first TWO only		(4)

TOTAL SECTION A: 20**SECTION B****QUESTION 2**

2.1	2.1.1	CGU✓		(1)
	2.1.2	Brings required amino acids✓ to the ribosomes✓ to form the required proteins		(2)
	2.1.3	$585 \times 3 = 1755$ ✓		(2)
	2.1.4	(a) Cysteine✓		(1)
		(b) Aspartic acid✓		(1)

- 2.1.5 - The double helix DNA unwinds✓
 - The double-stranded DNA unzips✓/weak hydrogen bonds break
 - to form two separate strands✓
 - One strand is used as a template✓
 - to form mRNA✓
 - using free RNA nucleotides✓ from the nucleoplasm
 - The mRNA is complementary to the DNA✓
 - mRNA now has the coded message for protein synthesis✓

Any (6)
(13)

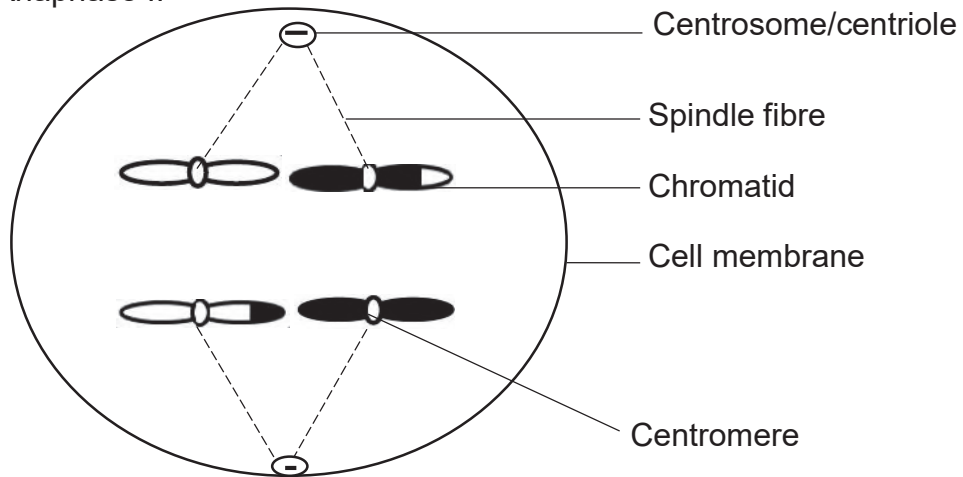
2.2 2.2.1 Telophase II✓

(1)

- 2.2.2 - Crossing over✓
 - Random arrangement✓
(Mark first TWO only)

(2)

2.2.3 Anaphase II



Marking criteria:

Caption	1
Correct type of diagram with the correct shading and correct position (4 chromatids arranged correctly)	1
Any two correct labels	2

(4)
(7)

[20]

QUESTION 3

- 3.1 3.1.1 High amounts of progesterone✓ (1)
- 3.1.2 - All healthy females✓
- No pregnant females✓
- Age✓ Any (2)
- (Mark first TWO only)**
- 3.1.3 - To serve as control✓
- so that it can be compared with group A✓
- It shows that progesterone is the only factor that affects the results✓/
improves validity of the investigation Any (2)
- 3.1.4 - High amounts of progesterone✓ in the blood (2)
- inhibited FSH production✓ (7)
- 3.2 3.2.1 (a) Testes✓ (1)
(b) Epididymis✓ (1)
- 3.2.2 562✓ (1)
- 3.2.3 As the age increases, the testosterone level in the blood of males
decreases✓✓ (2)
- 3.2.4 - No spermatogenesis will occur✓
- therefore, semen produced will have no sperm cells✓
- to fertilise the ovum✓ Any (2)
(7)
- 3.3 - Under the influence of FSH✓
- diploid cells✓/germinal epithelial cells
- in the ovary
- undergo mitosis✓
- to form numerous follicles✓
- One cell inside a follicle enlarges and undergoes meiosis✓
- Of the four cells that are produced, only one survives to form a mature,
haploid ovum✓ Any (6)
[20]
- TOTAL SECTION B: 40**
- GRAND TOTAL: 60**