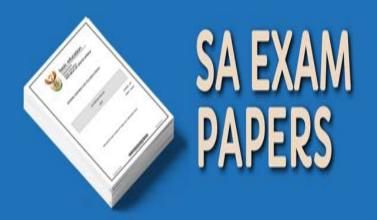


You have Downloaded, yet Another Great Resource to assist you with your Studies ©

Thank You for Supporting SA Exam Papers

Your Leading Past Year Exam Paper Resource Portal

Visit us @ www.saexampapers.co.za





Education

KwaZulu-Natal Department of Education REPUBLIC OF SOUTH AFRICA

LIFE SCIENCES

COMMON TEST

MEMORANDUM - JUNE 2021

NATIONAL SENIOR CERTIFICATE

GRADE 12

MARKS: 60

This memorandum consists of 5 pages.

NSC – Memorandum

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.

(1)

(1)

SECTION A

\cap	JES1		N	4
ωı	JEOI	IIU	I	

1.1	1.1.1	A√✓		
	1.1.2	C√√		
	1.1.3	D√√		
	1.1.4	C√√		
	1.1.5	B√√	()	
			(5 x 2)	(10)
1.2	1.2.1 1.2.2 1.2.3 1.2.4	Phenotype√ Cloning√ Colour blindness√ ADH√/Anti-diuretic hormone		(4)
4.0	101	Danke		
1.3	1.3.1	B only√√		(2)
	1.3.2	A only√√		(2)
	1.3.3	B only√√		(2) (6)
			TOTAL SECTION A:	20

SECTION B

QUESTION 2

2.1.3

2.1.4

2.1 Eating chocolate will have no effect on the blood glucose level ✓ OR

Eating chocolate will increase/decrease the blood glucose level ✓ (2)

2.1.2 It serves as a control ✓ (1)

2.1.5 - Learners must be of the same age√

- Same health status√

Pancreas√/ (Liver)

Insulin√

- Same person taking measurements√
- Same type of chocolate√
- Same amount of chocolate√
- Same gender of learners√
- Same fitness level√
- Two groups were used, one was given chocolate the other was not given chocolate√
- All participants were seated√
- The glucose levels of all participants was measured at the beginning of the investigation ✓
- Same thyroxin levels in the blood√

- The glucose levels of all participants was measured at regular intevals√ Any 2 (2)

(Mark the FIRST TWO only)

- 2.1.6 Increase in glucose levels√
 - will stimulate the pancreas√
 - to secrete more insulin√
 - which will increase glucose absorption into the muscles/cells√
 - The rate of cellular respiration will increase √
 - resulting in more energy being produced/released ✓ (Any 3) (3) (10)

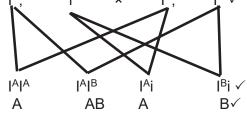
2.2 2.2.1 $I^{B}i^{\checkmark}$ (1)

- 2.2.2 ¹ It's controlled by alleles I^A and I^B ✓
 - which are equally dominant to each other√
 - and are both expressed in the phenotype√ (3)

2.2.3 P₁ Phenotype Blood group A × Blood group AB \checkmark Genotype $I^{A}i$ × $I^{A}I^{B}$ \checkmark Meiosis G/Gametes I^{A} , i × I^{A} , I^{B} \checkmark

Fertilisation

F₁
Genotype
Phenotype



P₁ and F₁ \checkmark Meiosis and Blood group O = $0\%\checkmark^*$ (no chance) fertilisation \checkmark

OR

P₁
Phenotype Blood group A × Blood group AB√
Genotype I^Ai × I^AI^B √
Meiosis

Fertilisation

F₁

AB	Blood group A				
dn	Gametes	IΑ	i		
gro	IΑ	Ι ^Α ΙΑ	l ^A i		
poo	lΒ	IAIB	l ^B i		
≅ .					

Phenotype Blood group A; Blood group AB;Blood group A;Blood group B

P₁ and F₁ ✓
Meiosis and fertilisation ✓ (correct gametes)
✓ (correct genotype)

Blood group O = 0%√* (no chance) Any 6

(6) (10) [20]

Any 6

QUESTION 3

3.1	3.1.1	Pituitary gland√/Hypophysis		(1)
	3.1.2	P√ - Cerebrum√		(2)
	3.1.3	 Motor impulses may not be generated√ To be sent to the effector muscles√ And walking/running/voluntary movements may not be coordinated√ Resulting in paralysis√ 		(3)
	3.1.4	 Cristae detects the change in direction and speed√ Stimulus is converted into an impulse√ which are sent to the cerebellum√ which sends impulses to the skeletal muscles√ to restore balance√ 	Any 4	(4) (10)
3.2	3.2.1	(a) Sclera√		(1)
		(b) Optic nerve√		(1)
	3.2.2	 Both are transparent√ Both are curved to refract light√ Both are flexible√ (Mark the FIRST TWO only) 		(2)
	3.2.3	 Distant objects remain unclear √/blurred Suspensory ligaments will not become taut √ tension on the lens will remain low √ causing a high refractive power √ causing only near objects being clear √ 		(3)
	3.2.4	 Circular muscles contract√ radial muscles relax√ pupil constrict√ less light enters the eye√ 	(Any 3)	(3) (10)
				[20]

TOTAL SECTION B: 40
GRAND TOTAL: 60