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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.

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SECTION A

QUESTION 1

1.1	1.1.1	C		
	1.1.2	C		
	1.1.3	B		
			(3 x 2)	**(6)**
1.2	1.2.1	Symbiosis		
	1.2.2	Osmoregulation		
	1.2.3	Emigration		
	1.2.4	Renal artery		
			(4 x 1)	**(4)**
1.3	1.3.1	A only		
	1.3.2	A only		
	1.3.3	None		
			(3 x 2)	**(6)**
1.4	1.4.1	Developing country		(1)
	1.4.2	- High birth rate/high natality rate/ more individuals in young age - Lower life expectancy/Less people reaching old age **(Mark first ONE only)**	Any	(1)
	1.4.3	-Female		(1)
	1.4.4	-To make better plans for the future needs of the country - Plan for schools, Housing, Hospital, etc that will be needed **(Mark first ONE only)**	Any	(1) **(4)**

TOTAL SECTION A: **20**

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SECTION B
QUESTION 2

2.1	2.1.1	(a)	Afferent arteriole	(1)
		(b)	Bowman's Capsule	(1)
	2.1.2	(a)	Glomerular filtration/ Ultrafiltration	(1)
		(b)	Tubular reabsorption / Re-absorption	(1)
	2.1.3		- The ultrafiltration membranes are damaged - making plasma proteins to filtered through **OR** - Blood pressure is much higher than normal - making plasma proteins to filtered through **(mark first ONE only)** Any 1 x 2	(2)
			Anti-diuretic hormone*/ ADH	**(6)**
2.2			- The pituitary gland secretes more ADH into the blood - ADH increases the permeability of the kidney tubules/distal convoluted tubules and collecting tubules - Causing more water to leave the filtrate by osmosis into the medulla - The water in the medulla is reabsorbed into the blood capillaries - The amount of the water in the blood increases to normal **(compulsory*1 + Any 4)**	**(5)**
2.3	2.3.1		Intraspecific competition	(1)
	2.3.2		- Grass - Water **(Mark first ONE only)**	(1)
	2.3.3		-High chances of being eaten by predators at night **(Mark first ONE only)**	(1)
	2.3.4		- The population of the Sable antelope and the population of their predators influence each other - When the population of Sable antelope increases, the population of their predators increase due to availability of food source OR - When the population of Sable antelope increases, the population of their predators increase due to availability of food source - Increased population of predators leads to decrease in the population of Sable antelope due to increased predation	(2) **(5)**
2.4	2.4.1		Mark and recapture method	(1)
	2.4.2		Estimated Population = $\frac{23 \times 29}{11}$ = 61	(3) **(4)**
				[20]

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QUESTION 3

3.1 3.1.1 Physical activity (1)

3.1.2 - Asked learners' permission
- Decided on the type of physical activities
- Decided how to measure the heart rate and breathing rate
- Decided on how to record the result of the investigation
- Decided the venue Any (2)
(Mark first TWO only)

3.1.3 - learners are same age
- learners walked same distance / 5km
- Learners ran same distance /5km Any (1)
(Mark first ONE only)

3.1.4 The learners' breathing rate increased (1)

3.1.5 Enables more carbon dioxide to be removed out of the body quickly /exhaled (2)

3.1.6 120 - 71 = 49 beats per minute (2)

3.1.7 Physical activities increase heart rate and breathing rate (2)
(11)

3.2 3.2.1 Logistic growth form (1)

3.2.2 - Lag phase*
- Gradual/Little/no increase in population size
(2)
(**compulsory*1+1**)

3.2.3 (a) Phase 4 (1)
(b) Phase 2 (1)
(c) Phase 3 (1)
(d) Phase 2 (1)

3.2.4 - Humans are able to overcome limiting factors
- By use of mechanized agriculture to produce enough foods
OR
- Humans are able to overcome environmental resistance
- By development of medicines for treatment of diseases (2)
Any 1x2 **(9)**
[20]

40

TOTAL SECTION B:
GRAND TOTAL: **60**

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