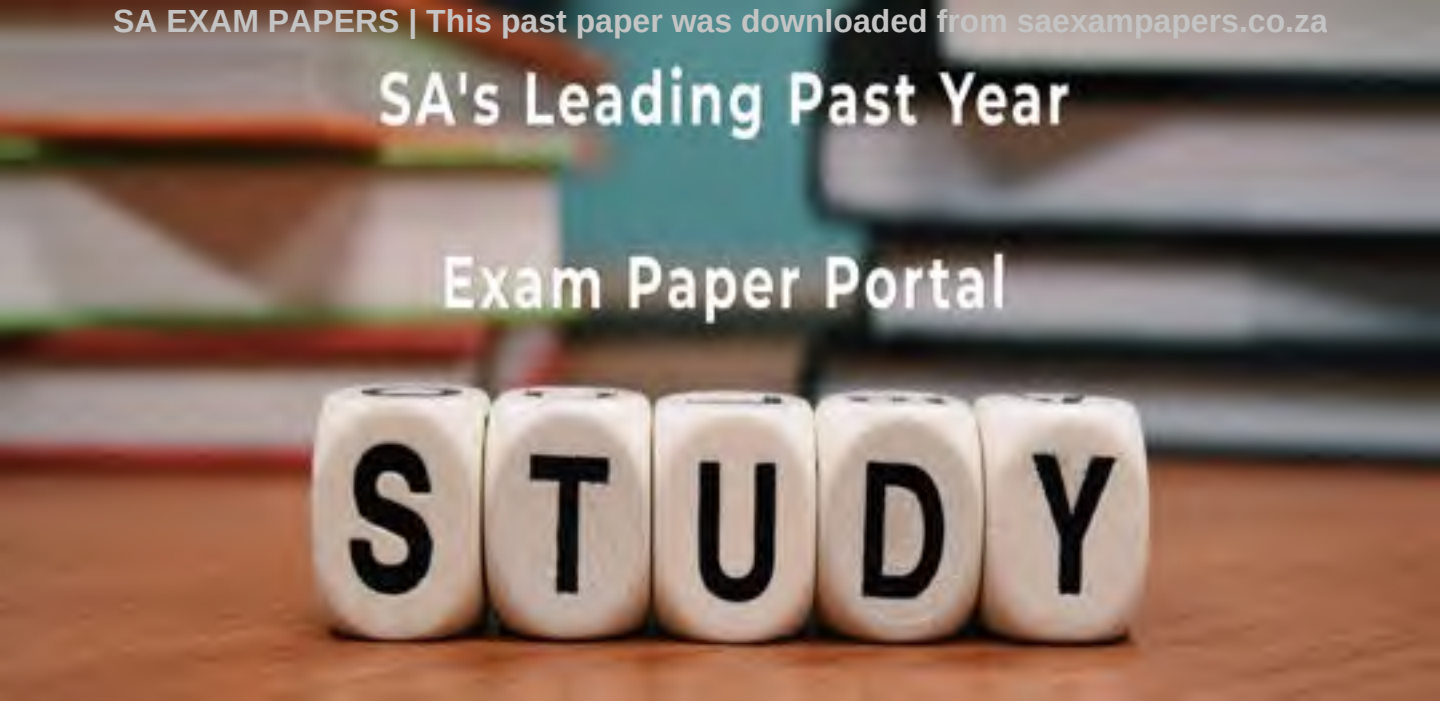

basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/
NATIONAL SENIOR CERTIFICATE EXAMINATIONS

LIFE SCIENCES P1

MAY/JUNE 2024

FINAL MARKING GUIDELINES

24 MAY 2024

MARKS: 150

RENETTE VAN DER WATT
INTERNAL MODERATOR
24/05/2024

NONTOBEKO MJALI
INTERNAL MODERATOR
24/05/2024

These marking guidelines consist of 9 pages.

APPROVED

MRS P.B. MAJOZI
UMALUSI
24/05/2024

DEPARTMENT OF BASIC EDUCATION
PRIVATE BAG X895, PRETORIA 0001
2024 -05- 24
APPROVED MARKING GUIDELINE
PUBLIC EXAMINATION

DR P. PREETHLALL
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24/05/2024

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.

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.

19. **Changes to the memorandum**
No changes must be made to the memoranda without consulting the provincial internal moderator who in turn will consult with the national internal moderator (and the Umalusi moderators where necessary).

20. **Official memoranda**
Only memoranda bearing the signatures of the national internal moderator and the Umalusi moderators and distributed by the National Department of Basic Education via the provinces must be used.

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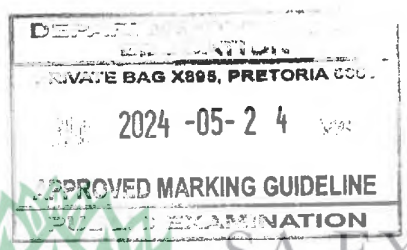

SECTION A

QUESTION 1

1.1	1.1.1	B✓✓		
	1.1.2	A✓✓		
	1.1.3	A✓✓		
	1.1.4	C✓✓		
	1.1.5	B✓✓		
	1.1.6	C✓✓		
	1.1.7	A✓✓		
	1.1.8	B✓✓		
	1.1.9	B✓✓	(9 x 2)	**(18)**
1.2	1.2.1	Carotid artery✓		
	1.2.2	Vivipary✓		
	1.2.3	Rods✓		
	1.2.4	Corpus luteum✓		
	1.2.5	Epididymis✓		
	1.2.6	Tympanic membrane✓/tympanum		
	1.2.7	Testis✓		
	1.2.8	Prolactin✓	(8 x 1)	**(8)**
1.3	1.3.1	B only✓✓		
	1.3.2	Both A and B✓✓		
	1.3.3	A only✓✓	(3 x 2)	**(6)**
1.4	1.4.1	- Brain✓ - Spinal cord✓ **(Mark first TWO only)**		(2)
	1.4.2	(a) Corpus callosum✓		(1)
		(b) Cerebellum✓		(1)
	1.4.3	(a) ~~C- Medulla oblangata~~ (*Refer to exam instruction*)		
		(b) A✓ Cerebrum✓		(2)
		CTx / CT✓ / CT✓✓		(2) **(8)**

CONVERSION TABLE

CANDIDATE MARK	ADJUSTMENT
0	+0
1	+0
2	+1
3	+1
4	+1
5	+2
6	+2

1.5	1.5.1	(a)	Hypothalamus✓	(1)
		(b)	Pituitary✓ gland/hypophysis	(1)
		(c)	ADH✓/antidiuretic hormone	(1)
		(d)	Nephron✓/renal tubules	(1)
	1.5.2	Decrease✓		(1) **(5)**
1.6	1.6.1	(a)	Amniotic✓fluid	(1)
		(b)	Placenta✓	(1)
	1.6.2	(a)	Umbilical vein✓	(1)
		(b)	- Chorionic villi✓/chorion - Endometrium✓ **(Mark first TWO only)**	(2) **(5)**

TOTAL SECTION A: 50

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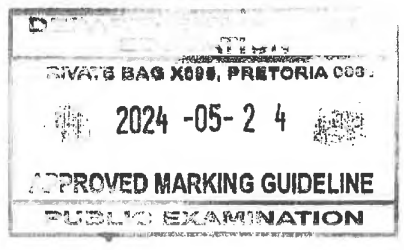

SECTION B

QUESTION 2

2.1	2.1.1	Oogenesis✓	(1)
	2.1.2	Amniotic✓egg	(1)
	2.1.3	- It has a shell✓ to prevent drying out✓of the embryo/amniotic fluid - It has amniotic fluid✓ to prevent drying out✓ of the embryo Any (1 x 2) **(Mark first ONE only)**	(2)
	2.1.4	- Females can reproduce without males✓ increasing the chances of the species to survive✓/therefore, less energy is used for reproduction **(Mark first ONE only)**	(2) **(6)**
2.2	2.2.1	- Stimulates ovulation✓ - Stimulates the development of the corpus luteum✓ **(Mark first TWO only)**	(2)
	2.2.2	Follicle stimulating hormone✓/FSH **(Mark first ONE only)**	(1)
	2.2.3	Progesterone✓	(1)
	2.2.4	- The (progesterone) levels will remain low✓ - The LH levels are low✓ therefore - ovulation will not take place✓ and - no corpus luteum will develop✓	(4)
	2.2.5	Hormone X /progesterone levels remain high✓	(1) **(9)**
2.3	2.3.1	(a) Age✓	(1)
		(b) Fertility✓ in men	(1)
	2.3.2	They determined the: - sperm count✓/number of normal sperm per mℓ of semen - progressive motility✓/ability of sperm to swim effectively in a straight line - sperm necrosis✓/immature or dead sperm per fresh semen sample **(Mark first THREE only)**	(3)
	2.3.3	- The investigation was conducted from 1999 to 2017✓/over 18 years - 1 294 men✓ were tested **(Mark first TWO only)**	(2)
	2.3.4	- So that age will be the only independent variable✓ - since high temperature can affect fertility✓/sperm count /sperm motility/ sperm necrosis - therefore, decreasing the validity✓ of the investigation	(3) **(10)**

2.4 2.4.1 (a) Mitochondria✓ (1)

(b) Acrosome✓ (1)

2.4.2 Seminiferous tubules✓ (1)

2.4.3 (a)
- It fuses with the nucleus of the ovum✓ to form the zygote✓
- It carries genetic material✓/DNA/chromosomes which is transferred to the offspring✓
- Contains haploid number of chromosomes✓ which contributes to the formation of a diploid cell✓

Any (1 x 2) (2)

(b)
- It contains enzymes✓ that digest the outer membrane of the ovum✓ (2)

2.4.4
- Organelles in part **B** release energy✓ which enables movement✓of part **C** (2)

2.4.5 5 (mm/minute) x 45 (minutes)✓
= 225✓ mm (2)
(11)

2.5 2.5.1 (a) Auditory nerve✓ (1)

(b) Cochlea✓ (1)

2.5.2 (a) Absorbs (excess) pressure waves✓ from the inner ear/prevents echo (1)

(b) Equalises pressure on either side of the tympanic membrane✓ (1)

2.5.3
- The person will suffer from hearing loss✓*/be deaf because
- no/less vibrations will be transmitted to the oval window✓ and
- no/less pressure waves will form in the cochlea✓/inner ear
- Therefore, there will be less/no stimulation of the organ of Corti✓/ hair cells
- Less/no impulses will reach the cerebrum✓

Compulsory mark✓* + Any 3 (4)
(8)

2.6
- Cristae✓
- are stimulated by a change in speed/direction of (movement) of the head✓
- Maculae✓
- are stimulated by a change in the position of the head✓
- to generate an impulse✓
- which is transmitted by the auditory nerve✓
- to the cerebellum✓ for interpretation

Any **(6)**
[50]

QUESTION 3

3.1 3.1.1 (a) Blind spot✓ (1)

(b) Cornea✓ (1)

(c) Sclera✓ (1)

3.1.2
- Radial muscles contract✓ and
- circular muscles relax✓
- The pupil widens✓/dilates
- More light enters the eye✓ (4)

3.1.3 Accommodation✓ (1)

3.1.4
- It is more convex✓
- so that light rays are refracted (bent) more✓
- to focus on the retina✓ /to form a clear image on the retina (3)

(11)

3.2 3.2.1
- The pathway along which impulses are transmitted✓
- to bring about a reflex action✓ (2)

3.2.2 (a) Guillain-Barre syndrome✓ (1)
(Mark first ONE only)

(b) Damage to the motor neurons✓ (1)
(Mark first ONE only)

(c) The skeletal muscles have a decreased reflex response✓ (1)
(Mark first ONE only)

3.2.3
- In hyporeflexia damage is between the spinal cord and the skeletal muscles✓ while
- in hyperreflexia damage is between the brain and the spinal cord✓ (2)

(Mark first ONE only)

3.2.4 Myelin sheath✓ (1)

3.2.5
- Axon is no longer insulated✓
- This causes the speed of transmission of nerve impulses to decrease✓
- which can lead to a delayed response✓ and
- therefore, loss of muscle control✓ Any (3)

(11)

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3.3	3.3.1	(a) - Insulin✓ - Glucagon✓ **(Mark first TWO only)**	(2)
		(b) Pancreas✓	(1)
	3.3.2	08:00 and 09:00✓	(1)
	3.3.3	- Blood glucose levels increased✓ - to above 7,1✓mmol/L/ to 8,4 mmol/L	(2)
	3.3.4	- Blood glucose levels decreased to below 3,9✓ mmol/L at 14:00 - stimulating the Islets of Langerhans✓ /pancreas - to secrete glucagon✓ - which stimulates the conversion of glycogen to glucose✓ - therefore, increasing blood glucose levels✓ at 15:00 Any	(4)
	3.3.5	- Levels would have remained high✓ - for a longer period✓	(2) **(12)**
3.4	3.4.1	Adrenal✓ gland	(1)
	3.4.2	On top of the kidneys✓	(1)
	3.4.3	- It stimulates the breathing muscles✓ - and this increase the rate/depth of breathing✓ so that - more oxygen is inhaled✓ - It stimulates the heart✓muscle - causing an increase in heart rate✓/blood pressure so that - oxygen and glucose are transported faster✓ Any	(5) **(7)**
3.5	3.5.1	(a) Geotropism✓/Gravitropism	(1)
		(b) Auxins✓	(1)
	3.5.2	- Due to gravity✓ - there is a higher concentration of auxins on the lower side✓ of the root - which inhibits growth✓ - Therefore, growth will occur mainly on the upper side✓ - causing the root to bend/grow downwards✓	(5)
	3.5.3	- The seedling must be rotated constantly✓ - to remove the effect of gravity✓	(2) **(9)** **[50]**

TOTAL SECTION B: 100
TOTAL: 150