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Department:
Education
PROVINCE OF KWAZULU-NATAL

LIFE SCIENCES P1
PREPARATORY EXAMINATION
MARKING GUIDELINE - SEPTEMBER 2021

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

MARKS: 150

This memorandum consists of 8 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	C✓✓		
	1.1.3	B✓✓		
	1.1.4	B✓✓		
	1.1.5	B✓✓		
	1.1.6	B✓✓		
	1.1.7	C✓✓		
	1.1.8	D✓✓		
	1.1.9	B✓✓		
	1.1.10	D✓✓	(10 x 2)	(20)
1.2	1.2.1	Precocial✓		
	1.2.2	ADH✓/antidiuretic hormone		
	1.2.3	Parasympathetic✓		
	1.2.4	Alzheimer's disease✓		
	1.2.5	Goitre✓		
	1.2.6	Multiple sclerosis✓		
	1.2.7	Choroid✓		
	1.2.8	Osmoregulation✓		
	1.2.9	Glucagon✓		(9)
1.3	1.3.1	Both A and B✓✓		(2)
	1.3.2	None✓✓		(2)
	1.3.3	A only✓✓		(2)
				(6)
1.4	1.4.1	(a) C✓ - Sweat gland✓		(2)
		(b) A✓ - Capillary/blood vessel✓.		(2)
	1.4.2	It becomes less active✓/produces less sweat		(1)
				(6)
1.5	1.5.1	(a) A✓ – Dendrite✓		(2)
		(b) D✓ – myelin sheath✓		(2)
		(c) C✓ – Axon✓		(2)
		(d) B✓ - Nucleus✓		(2)
	1.5.2	Motor neuron✓		(1)
	1.5.3	X to Y✓		(1)
				(10)

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SECTION B**QUESTION 2**

- 2.1 2.1.1 (a) Ovary✓ (1)
- (b) Uterus✓/uterine wall (1)
- (c) Cervix✓ (1)
- 2.1.2 Receives the penis✓ during sexual intercourse
Serves as a birth canal✓ (2)
- 2.1.3 A only allows the passage of an ovum✓
Which has no effect✓ on the menstrual cycle
Since it is controlled by hormones✓
Which are transported by blood✓ Any 3 (3)
- 2.1.4 Placenta✓*
- Micro-filters pathogens not to enter the foetus from the mother✓
- Links the foetus and the mother✓
- Produces antibodies that provide passive immunity to the baby✓
- Filters waste from the baby to the mother for excretion✓/gas exchange
- Sends nutrients from the mother to the baby✓
- Foetal protection
- Hormone secretion 1 compulsory mark + any 2 (3)
(Mark FIRST TWO ONLY)
- 2.1.5 - In the fallopian tubes✓
- One sperm cell makes contact with the ovum's membrane✓
- The nucleus of the sperm enters the ovum✓
- Then the ovum membrane cannot be penetrated by other sperms✓
- The nucleus of the sperm fuses✓
- With the nucleus on the ovum✓
- To form a diploid zygote✓. (Any 5) (5)
(16)
- 2.2 2.2.1 FSH✓ (1)
- 2.2.2 - Oestrogen levels increased✓
- causing the endometrium to thicken✓. (2)
- 2.2.3 - Corpus luteum remained intact✓
- therefore continued to produce progesterone✓/hormone A.
- to further thicken the endometrium✓
- for implantation to occur✓
- and maintenance of pregnancy✓. Any 4 (4)

- 2.2.4 - Ovulation will not occur✓
- Therefore no fertilisation will take place✓ (2)
(9)
- 2.3 2.3.1 - The formation of male gametes/sperms✓. (1)
- 2.3.2 Testis✓ (1)
- 2.3.3 - Under THE influence of FSH✓
- diploid cells in the ovary undergo mitosis✓
- to form numerous follicles✓
- One cell inside a follicle enlarges and undergo meiosis✓ (5)
- Of the four cells that are produced only one survives to form a mature haploid ovum✓ (7)
- 2.4 2.4.1 (a) Amount of abscisic acid✓ (1)
(b) Seed germination✓ (1)
- 2.4.2 Promotes seed dormancy✓/inhibits growth (1)
- 2.4.3 As the days increase the hormone concentration decreases✓✓ (2)
- 2.4.4 - Decrease in abscisic concentration✓
- which allows seed germination✓/growth. (2)
- 2.4.5 - Same type of seeds✓.
- Same age of seeds✓.
- Same measuring instrument✓.
- Same person taking measurements✓. (2)
(Mark the FIRST TWO only)
- 2.4.6 - As the setup was placed in the dark cupboard✓
- there was no effect of light✓
- Force of gravity✓ acts on the seedlings
- the stem is negatively geotropic✓
- hence it grows straight upwards✓. (Any 4) (4)
(13)
- 2.5 2.5.1 Internal fertilisation✓ (1)
- 2.5.2 Female takes in the sperms and fertilisation occurs inside her body✓. (1)
- 2.5.3 Ovovivipary (1)
- 2.5.4 - Fertilised egg/zygote is kept within the body of the female✓
- therefore protecting them from harsh environmental conditions✓/predators
- which increases the chances. (2)
(5)

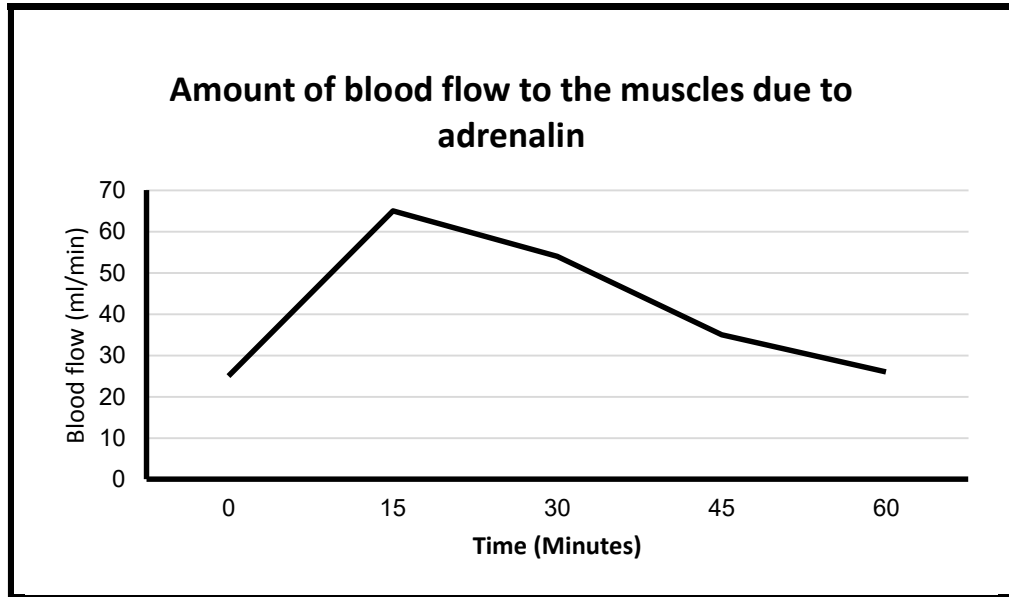
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QUESTION 3

- 3.1 3.1.1 Meninges✓ (1)
- 3.1.2 (a) Corpus callosum✓ (1)
- (b) Medulla Oblongata✓ (1)
- (c) Spinal cord✓ (1)
- 3.1.3 - Interprets sensations✓
- Control voluntary actions✓/walking/running/talking etc.
- Responsible for higher thought processes✓ (2)
- (Mark FIRST TWO only)**
- 3.1.4 - Controls vital functions such as breathing✓/heart beat/blood pressure which can stop immediately✓/instantly
- which will lead to instant death. (2)
- (8)**
- 3.2 - A collection of motor neurons located in the neck, head, thorax, abdomen and pelvis✓*
- Every organ and gland are controlled by two sets of nerves✓/double innervations
- The set of nerves act antagonistically✓
- To control involuntary events✓/brings about homeostasis
- Sympathetic nerves✓
- stimulates a response✓/prepares the body system for flight/fight eg speed heartbeat
- Parasympathetic nerves✓
- inhibits a response✓/brings about the response we associate with relaxed/rest state and thus conserves energy.
1 Compulsory mark + Any 4 (5)
- 3.3.1 It is a pathway taken by impulses✓ from the receptors to the CNS✓ and to the effectors✓ to bring about a reflex action. (3)
- 3.3.2 B✓ - Synapse✓ (2)
- 3.3.3 - Sensory neuron will transmit impulses to the spinal cord✓
- And therefore, he will feel the heat✓/pain
- but impulses will not be sent to his muscles✓
- therefore, he cannot remove his finger from the burning plate✓/will burn his finger. (4)
- (9)**
- 3.4 3.4.1 Long sightedness✓ (1)
- 3.4.2 - Image falling behind the retina✓
- Lens less convex✓/more flat (2)
- (Mark the FIRST TWO)**

- 3.4.3 - Short sightedness✓
- Wearing glasses with concave lenses✓ (2)
(5)
- 3.5 3.5.1 (a) Oval window✓ (1)
(b) Tympanic membrane✓ (1)
- 3.5.2 E✓ (1)
- 3.5.3 organ of Corti✓/hair cells (1)
- 3.5.4 - They lie on three different planes✓
- to detect movement in any direction✓
- fluid moves in at least one of the semi-circular canals✓
- to stimulate receptors✓ Any 3 (3)
- 3.5.5 - Air will not be taken in✓/released
- to equalise pressure✓
- on both sides of the tympanic membrane✓
- Tympanic membrane✓/ossicles may not vibrate freely
- This may lead to the tympanic membrane bursting✓ and therefore
could lead to hearing loss✓/deafness Any 3 (3)
(10)
- 3.6 3.6.1 (a) Adrenal✓ gland (1)
(b) Thyroxin✓ (1)
- 3.6.2 Endocrine✓ (1)

3.6.3



Criteria	ELABORATION	Marks
Caption of graph (C)	Both variables included	1
Correct type of graph (T)	Line graph drawn	1
Axes labels (L)	X- and y- axis correctly labelled with units	1
Scale for x- and y- axis (S)	Correct scale for x- axis and for y-axis	1
Plotting of graph (P)	1-4 points plotted correctly.	1
	All 5 points plotted correctly	2

(6)

- 3.6.4
- There is an increase in blood flow to the heart✓
 - which supplies more oxygen and glucose to the cells✓
 - to increase energy production in the cells✓/increase cellular respiration
 - to deal with emergency✓

(4)

(13)

[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150