KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

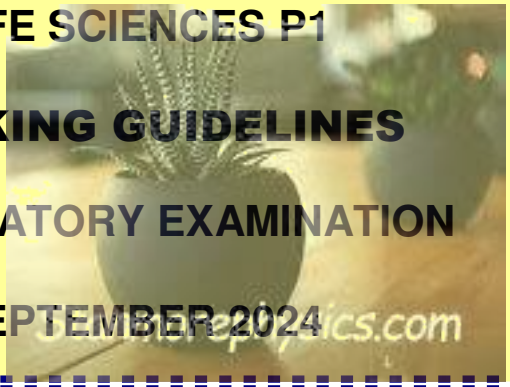
GRADE 12

LIFE SCIENCES P1

MARKING GUIDELINES

PREPARATORY EXAMINATION

SEPTEMBER 2024



MARKS: 150

This marking guideline consists of 9 pages.

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SECTION A

QUESTION 1

1.1 1.1.1 A /D✓✓
1.1.2 C ✓✓
1.1.3 D ✓✓
1.1.4 A ✓✓
1.1.5 B ✓✓
1.1.6 C ✓✓
1.1.7 D ✓✓
1.1.8 D ✓✓
1.1.9 D ✓✓
1.1.10 No answer (9 x 2) **(18)**

1.2 1.2.1 Phototropism ✓
1.2.2 Placenta ✓
1.2.3 Urethra ✓
1.2.4 Vivipary ✓
1.2.5 Amniotic ✓ egg
1.2.6 Herbicides ✓
1.2.7 Maculae ✓
1.2.8 Acrosome ✓ **(8)**

1.3 1.3.1 B only ✓✓
1.3.2 A only ✓✓
1.3.3 B only ✓✓ (3 x 2) **(6)**

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1.4 1.4.1 (a) P✓ - Epididymis✓ (2)

(b) M✓ - Vas deferens✓ (2)

(c) O✓ - Scrotum✓ (2)

1.4.2 - Produces sperm cells✓/ site of spermatogenesis
- Produces testosterone✓ (2)
(Mark first TWO only) **(8)**

1.5 1.5.1 (a) Light✓ (1)

(b) Gravity✓ (1)

1.5.2 (a) Root✓ (1)

(b) Stem✓ (1)

1.5.3 region P✓ (1)

1.5.4 region S✓ (1)

1.5.5 (a) Negative phototropism✓ (1)

(b) Negative geotropism✓ (1)
(8)

SECTION A: 48

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SECTION B

QUESTION 2

2.1 2.1.1 (a) Endometrium ✓/uterus (1)

(b) Cervix ✓ (1)

(c) Ovary ✓ (1)

2.1.2 (a) It is a site of fertilisation ✓ / allows for the passage of an ovum/zygote. (1)
(Mark first ONE only)

(b) - Used for copulation ✓
- Serves as a passage for the baby during birth ✓ / It's a birth canal. Any (1)

(Mark first ONE only)

2.1.3 - Sperms and ova will not come into contact ✓
- Fertilisation will not happen ✓
- And a person will be infertile ✓ Any (3)

2.1.4 - It is kept within the uterus✓/inside the mother's body
- Covered by the chorion ✓ } **OR** extra embryonic membranes✓✓
- and an amnion ✓
- Surrounded by the amniotic fluid✓
- Which serves as shock absorber ✓/prevents mechanical injuries
- and prevents dehydration ✓
- Attached to the mother via placenta ✓
- which produces antibodies ✓
- and filters waste ✓
- Progesterone keeps the endometrium thick ✓
- Prevents miscarriage✓/allows for the attachment of the embryo. Any (5)

(13)

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2.2 2.2.1 Testosterone ✓ (1)

2.2.2
- They hang outside the body ✓
- to expose them at a lower temperature ✓
- than the internal body temperature ✓
- that leads to the development of healthy sperms ✓
- and maintains the sperm count✓

Any (4)
(5)

2.3 2.3.1 Peripheral✓ nervous system (1)

2.3.2 Brain✓ and spinal cord✓
(Mark first TWO only) (2)

2.3.3 No answer

2.3.4 Cranial✓ and spinal✓ nerves
(Mark first TWO only) (2)

2.3.5
- To increase heart rate✓
- Dilates blood vessels of the skeletal muscles✓
- Dilates the pupil✓
- Constrict the blood vessels of the gut and skin✓
- To increase breathing rate✓
- Stimulates the adrenal gland✓
- To produce more adrenalin✓
- Stimulates the secretion of sweat✓

Any (5)
(10)

2.4 2.4.1 No answer

2.4.2
- receptors receive a stimulus ✓
- and convert it into an impulse ✓
- which travels via sensory neuron ✓
- to the spinal cord ✓
- the impulse travels through the synapse ✓
- into the interneuron ✓
- which sends it to the motor neuron ✓
- that carry impulse to the effector ✓
- to bring about a rapid response to the stimulus ✓

Any (5)
(5)

2.5 2.5.1 Above 80 ✓ years / ≥ 80 years (1)

2.5.2
- Muscle weakness ✓
- Difficulty speaking ✓
- Difficulty moving✓ (hands/arms, legs/feet, any appropriate answer)
- Visual problems ✓

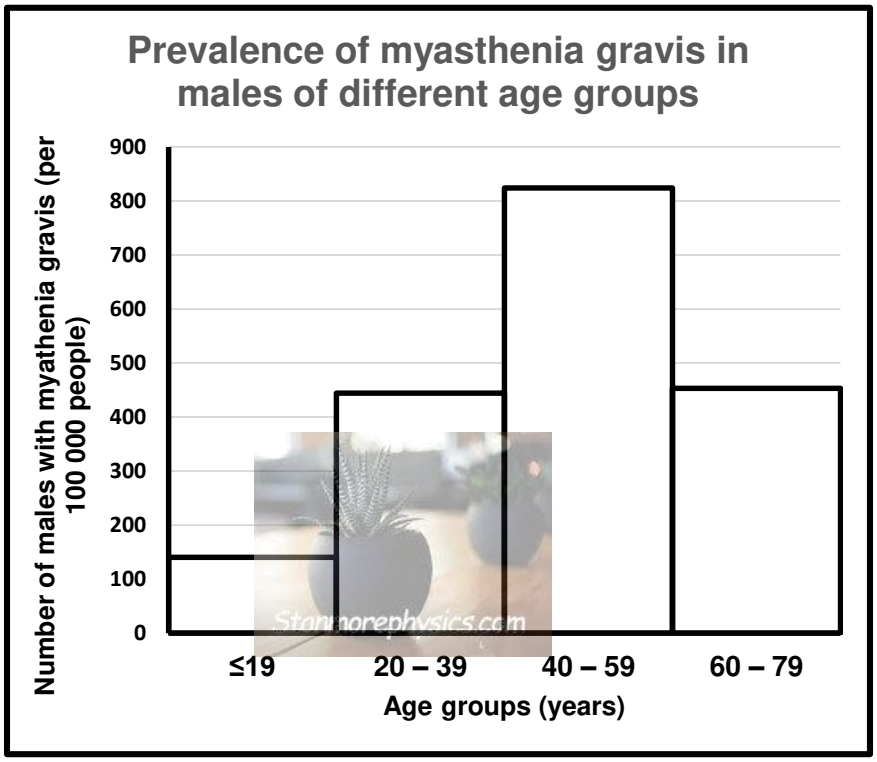
Any (2)
(Mark the FIRST TWO only)

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2.5.3 The risk of myasthenia gravis increases as the age increase ✓ until the age of 59 ✓ after that it decreases as the age increases. ✓ (3)

2.5.4 (1293/100 000) ✓ × 12500000 ✓ = 161 625 ✓ (3)

2.5.5



MARKING CRITERIA

CRITERIA	ELABORATION	Marks
Caption of graph (**T**)	Both variables included	1
Correct type of graph (**C**)	Histogram drawn	1
Axes labels (**L**)	X- and Y – axes correctly labelled with units	1
Scale for X- and Y – axes (**S**)	Equal width of bars for x-axis Correct Y-axis	1
Plotting of bars (**P**)	- 1 – 3 correct bars drawn correctly - All 4 **required** bars drawn correctly	1 2

(6)
(15)
[48]

QUESTION 3

3.1 3.1.1 (a) D ✓ and E ✓ (2)

(b) B ✓, C ✓ and I ✓ Any (2)
(Mark first TWO only)

3.1.2 (a) Controls the amount of light that enters the eye ✓ (1)

(b) - Absorbs excess light✓
- Supplies the eye with nutrients and oxygen ✓ Any (1)

(c) Equalises air pressure between the middle and outer ear ✓ (1)

3.1.3 (a) - Contains cristae ✓
- Which are stimulated by the change in direction and speed ✓
- And convert the stimulus into an impulse ✓ (3)

(b) - Eardrum vibrates ✓
- Causing ossicles to vibrate and amplify vibrations ✓
- This causes vibration of the oval window ✓
- Setting pressure waves on the endolymph ✓
- Which stimulates the organ of Corti ✓ in the cochlea
- Organ of Corti converts the stimulus into an impulse ✓ Any (5)
[15]

3.2 3.2.1 Hypothalamus✓ (1)

3.2.2
- rapid heart rate✓
- confusion✓
- dry and hot skin✓ Any (2)
(Mark first TWO only)

3.2.3
- blood vessels of the skin constrict ✓ / vasoconstriction occurs
- less blood flows to the skin surface ✓
- less heat is lost✓ through radiation
- less blood flows to the sweat glands ✓
- sweat glands become less active ✓
- less sweat is produced ✓
- less heat is lost through evaporation ✓ / more heat is retained within the body. Any (4)

3.2.4
- High temperature ✓
- Enzymes will denature ✓ in the cells
- The rate of metabolism will decrease ✓ (3)
(10)

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3.3 3.3.1 ✓

Diabetic person	Non-diabetic person
1. More increase in glucose level✓	1. Less increase in glucose level✓
2. Takes much longer to return to initial level✓	2. Returns to normal much faster✓

1 mark for table + any 4 (5)

3.3.2
- During exercise carbon dioxide increases ✓
- The receptors in the carotid arteries detect this increase ✓
- A message is sent to the medulla oblongata ✓
- Which send impulses to the breathing muscles ✓
- and the heart✓
- To increase the rate and depth of breathing ✓
- More deoxygenated blood is sent to the lungs ✓
- More carbon dioxide is exhaled ✓
- Carbon dioxide in the blood returns to normal ✓ Any (5)

(10)

3.4

3.4.1 No answer

3.4.2
- 50 adults participated ✓
- The investigation was done over a period of 5 days ✓ Any (2)

(Mark first TWO only)

3.4.3
- Ask for permission of the participants ✓
- Decide on the sample size ✓
- Decide on the time and venue ✓
- Decide on the duration of the investigation ✓
- Decide on a measuring tool✓
- Decide on a recording method✓ Any (2)

(Mark first TWO only)

3.4.4 Kidney✓ (1)

3.4.5 Participants were:
- Of different age groups✓
- Different gender✓
- Different health status✓/not specified whether they had hypopituitarism✓
- Measurements were not taken throughout the day✓
- Diet and liquid intake was not controlled✓ Any (2)

(Mark first TWO only)

3.4.6 No answer

3.4.7 No answer **(7)**

[42]

TOTAL SECTION B: 90
GRAND TOTAL: 138

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CONVERSION TABLE

Mark obtained	Mark added
133 - 138	+12
121 – 132	+11
110 – 120	+10
97 – 109	+9
87 - 96	+8
74 – 86	+7
63 – 73	+6
52 – 62	+5
40 – 51	+4
30 – 39	+3
18 – 29	+2
6 – 17	+1
0 - 5	+0

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