



Province of the
EASTERN CAPE
EDUCATION

Iphondo leMquma Kapa: Isabe leMfundo
Provinsie van die Oos Kaap: Departement van Onderwys
Porafensie Ya Kapa Botjhabela: Lefapha la Thuto

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2024

AMENDED LIFE SCIENCES P1 **MARKING GUIDELINE**

MARKS: 150

PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. **If more information than marks allocated is given**
Stop marking when maximum marks are 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 the 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 provincial 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. Marking guideline will allocate marks for units separately.

16. **Be sensitive to the sense of an answer, which may be stated in a different way.**

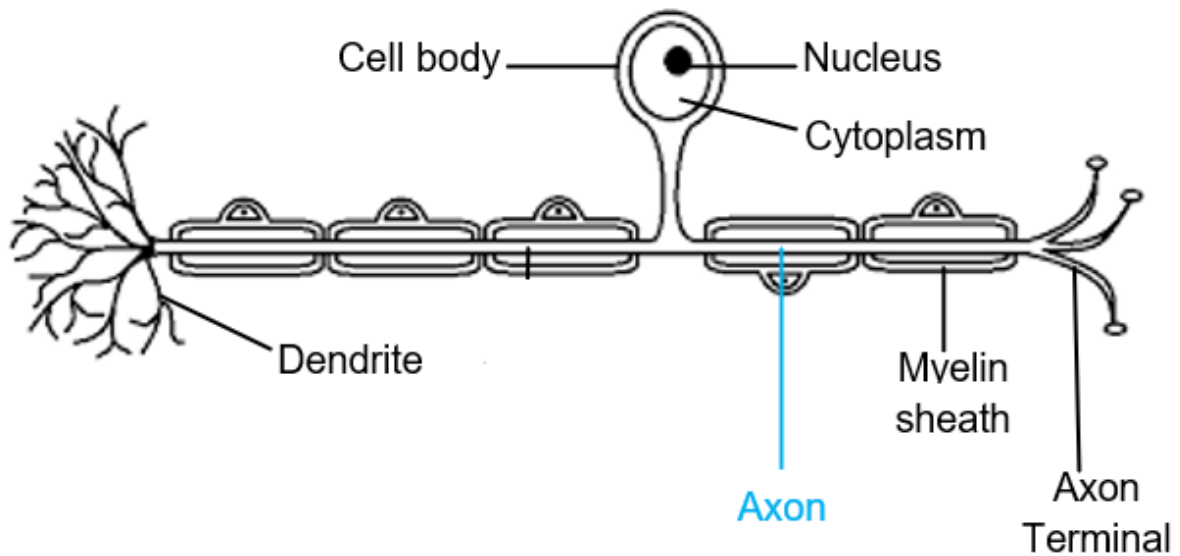
17. **Caption**

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.

1.5 Diagram of sensory neuron

**Marking guideline:**

- (T) Suitable title ✓
 - (L) Labels ✓✓✓ (Any 3)
 - (D) Correct drawing (sensory neuron) ✓ (5)
- If incorrect diagram is drawn credit for correct labels and title. Learners will only lose a mark for drawing.

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1 10
 $\frac{\quad}{100} \checkmark \times 84\,000 \checkmark = 8\,400 \checkmark$ babies (move tick) (3)

- 2.1.2 (a) - Thick plastic bag \checkmark
 Encloses (protects) the developing foetus \checkmark until delivery /
 encloses(contains) amniotic fluid
(Mark first ONE only) (2)
- (b) - Oxygenator \checkmark
 Allows for gaseous exchange \checkmark supplies oxygen to foetus

OR

- Intravenous bag \checkmark
 Provides nutrients \checkmark /hormones /anticoagulant
- Umbilical attachment \checkmark
 Supplies nutrients /hormones /anticoagulant /oxygen to foetus \checkmark
(Mark first ONE only) (Any 1 x 2) (2)

- 2.1.3 - The developing foetus (organs) is allowed to continue developing \checkmark / Giving the organs sufficient **time**
 - its normal **development** \checkmark / to develop fully/ for optimal development
 - Scientists can determine when the **gestation period is over** \checkmark / when to deliver the baby

OR

- Provides the sufficient **nutrients** \checkmark
- for **development** \checkmark
- so organs can develop fully/ **no deformities** (3)

- 2.1.4 - Human foetuses could possibly be lost / destroyed \checkmark
 - Acquiring consent from regulatory bodies \checkmark / parents
 - Fully informing donor parent(s) about the risks \checkmark
 - Contrary to religious observances \checkmark /
(Mark first TWO only) (Any 2 x 1) (2)

- 2.2 2.2.1 Internal ✓ fertilisation (1)
- 2.2.2 The male releases semen inside of the female's body ✓ (1)
- 2.2.3 Vivipary ✓ (1)
- 2.2.4 - The baby kangaroo is able to develop within its mother's pouch for an extended period of time ✓ / till 235 days
- This gives greater protection ✓ against environmental threats (accept examples of threats)

OR

- The baby kangaroo latches onto a teat ✓ of the mother
- Providing nutrition ✓

(Mark first ONE only)

(Any 1 x 2) (2)

2.2.5 Baby kangaroo is ...

- blind ✓
- naked ✓
- relies on parent for nutrition ✓
- **crawling** ✓

(Any 2 x 1) (2)

- 2.3 2.3.1 (a) Vitreous humour ✓* / chamber
- Contains nutrients for the inner eye ✓
 - Maintains eyeball shape ✓
 - Transparent to allow for transmission of light to retina ✓
 - **Refraction of light rays** ✓
 - **Holds retina in position** ✓ (✓* compulsory + ✓ function) (2)
- (b) Cornea ✓*
- Refraction of light ✓
 - Protection ✓ of the eye
 - Allows light to enter the eye ✓ (✓* compulsory + ✓ function) (2)
- 2.3.2 - Light entering the eye will not be effectively regulated ✓ /controlled
- Too much light / too little could enter the eye ✓
 - Distorting images that fall on the retina ✓ /causing blurred vision / **damages to the retina / blindness** (3)

- 2.3.3 - Ciliary muscles contract ✓
 - Suspensory ligaments slacken ✓
 - Tension on the lens decreases ✓
 - Lens becomes more convex ✓ / bulged
 - Refractive power of lens will increase ✓ / light rays are refracted more (a clear image is focused on the retina) (5)
- 2.4.1 (a) D ✓ – Oval window ✓ (2)
- (b) B ✓ – Cochlea ✓ (2)
- 2.4.2 - Change in speed/ direction of head ✓*
 - Stimulates the cristae ✓*
 - Stimulus is converted to an impulses ✓
 - Impulse is transmitted to the cerebellum ✓
 - Via the auditory nerve ✓
 - The cerebellum sends impulses to voluntary / skeletal muscles ✓ to maintain balance (compulsory 2 * + any 2) (4)
- 2.4.3 - Long coiled structure ✓
 Increased surface area to detect pressure waves of endolymph / ✓ enhances the ability to detect low frequency sound

OR

- Presence of hair cells ✓ / organ of Corti / receptors
 To detect pressure waves ✓ / convert stimulus to impulse

OR

- Contains fluid ✓ / perilymph and endolymph
 Medium through which pressure waves are generated / moves through ✓ (Any 1 x 2) (2)

2.5.1 Geotropism ✓ (1)

- 2.5.2 Due to rotation of clinostat
- Gravity will be even on all sides ✓ / there will be no effect of gravity
 - Auxins will be evenly distributed ✓ in the root tip
 - Causing even cell elongation ✓ / growth
 - Causing the root to grow horizontal ✓ / not to bend (Any 3 x 1) (3)

- 2.5.3
- Auxin moves to the dark/shaded side ✓ of the stem
 - High concentration of auxin stimulates growth ✓
 - Leading to increased cell growth/elongation ✓ on that side
 - The stem bends towards the light ✓

OR

Concession based on diagram with rotating clinostat (NOT A CORRECT ANSWER)

- Light will be even on all sides ✓ / there will be no effect of light
- Auxins will be evenly distributed ✓ in the stem tip
- Causing even cell elongation ✓ /growth
- Causing the stem to grow horizontal ✓ /not to bend

(Any 3 x 1)

(3)

- 2.5.4
- Mechanical ✓/thorns
 - Chemical ✓

(2)

[50]

QUESTION 3

- 3.1.1 - 20 rats were placed into each group ✓ /60 rats used
To ensure a large sampling size ✓

OR

- Testing done over 90 days ✓
So experiment was done over longer period of time ✓
(experiment was not repeated)

OR

- Blood serum samples were harvested from 10 rats ✓
In order to calculate an average ✓

OR

- Blood serum samples were harvested at random ✓
In order to prevent bias ✓

(Mark the first ONE)

(Any 1 x 2)

(2)

- 3.1.2 - By using rats of the same (reproductive) ages ✓
- Giving the rats the same amount of water ✓
- Same amount of food ✓
- Fed at same time of day ✓
- Same environment ✓
- Sampling by same person ✓
- Use same apparatus ✓ to measure testosterone levels

(Mark the first ONE)

(Any 1 x 1)

(1)

- 3.1.3 - Testosterone level ✓ /amount of testosterone

(1)

- 3.1.4 - It is the control ✓ / To allow us to compare results
- To show the decrease in testosterone ✓ /fertility
- Is due to microplastics ✓
- And not the water ✓ / any other factor

(Any 3 x 1) (3)

- 3.1.5 As microplastics accumulate in an organism's body (rats), fertility rates will decrease ✓✓

(2)

- 3.1.6 - Under the influence of testosterone ✓
- diploid cells in the seminiferous tubules ✓ of the testes
- undergo meiosis ✓
- to form haploid sperm cells ✓

(4)

- 3.1.7 - Low testosterone levels ✓ / would result in a decrease in spermatogenesis ✓ / less sperm will be formed/mature (2)
- 3.2.1 (a) Adrenal glands ✓ (1)
- (b) Pancreas ✓ (1)
- 3.2.2 To maintain level of thyroxine ✓ within narrow limits ✓ / at normal concentration in the body (2)
- 3.2.3 Exocrine
- due to its secretion ✓ / pancreatic juice
 - into a duct ✓
- Endocrine
- secretion of hormone ✓ / glucagon / insulin
 - directly into the blood ✓ (4)
- 3.2.4 - Gland C secretes the hormone adrenalin ✓
- increases conversion of glycogen to glucose ✓
 - increase in blood glucose levels ✓
 - increase in breathing rate ✓
 - more oxygen diffuses into blood stream ✓
 - increases heart rate ✓
 - dilates blood vessels to skeletal muscles ✓
 - more blood reaches skeletal muscles ✓ (Any 5 x 1) (5)
- 3.2.5 (a) pituitary gland ✓ / hypophysis / Part A (1)
- (b) Award 1 mark(✓) (1)
- 3.3.1 (a) Ovaries ✓ / Graafian follicle / developing follicle (1)
- (b) Ovaries ✓ / Corpus luteum ✓ (1)
- 3.3.2 - Day 14 ✓ (1)
- 3.3.3 - LH levels had spiked ✓ / peaked (1)
- 3.3.4 - Implantation / fertilisation / has occurred ✓
- The corpus luteum does not degenerate ✓ / continues to produce progesterone (2)

- 3.3.5 - High levels of progesterone ✓
- Will inhibit the pituitary gland ✓
- From secreting FSH ✓
- No follicles will be stimulated to develop ✓ (4)
- 3.4.1 - Chemoreceptors in the carotid artery are stimulated ✓ by the drop in pH
- Impulses are sent to the medulla oblongata ✓ /medulla oblongata is stimulated
- The medulla oblongata stimulates the heart ✓
- to beat faster ✓ causing
- more carbon dioxide to be taken to the lungs ✓
- the breathing muscles ✓ /intercostal muscles and diaphragm
- contract more actively ✓ and
- the rate/depth of breathing increases ✓
- more carbon dioxide is exhaled ✓
- The carbon dioxide level in the blood decrease ✓ /returns to normal Any (7)
- 3.4.2 - The athlete would develop high body temperature ✓ / hyperthermia
- Proteins/enzymes may denature ✓
- metabolic processes stop ✓
- Leading to loss of consciousness ✓ / permanent damage /death

(Any 3 x 1)

(3)

[50]**TOTAL SECTION B: 50****GRAND TOTAL: 150**