MARKING GUIDELINES

EXAMINATION	NATIONAL SENIOR CERTIFICATE
GRADE	12
DATE	NOVEMBER 2025
SUBJECT	LIFE SCIENCES
PAPER	1
MARK TOTAL	150
DURATION (HOURS)	2½
NUMBER OF PAGES	12

SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE

SUID-AFRIKAANSE KOMPREHENSIEWE ASSESSERINGSINSTITUUT

FINAL APPROVED MARKING GUIDELINES	
DATE OF MEETING	
UMALUSI MODERATOR	
CHIEF MARKER	
INTERNAL MODERATOR	

PRINCIPLES RELATING TO MARKING LIFE SCIENCES 2025

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 part of it is required**
   Read all and credit relevant part.

4. **If comparisons are asked for but descriptions are given**
   Accept if differences/similarities are clear.

5. **If tabulation is required but paragraphs are given**
   Candidates will lose marks for not tabulating but clear content is credited.

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 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 instead of scientific terms.**
    Accept provided it was accepted at the marking guideline discussion meeting.

Please turn over

14. **If only letter is asked for and only name is given (and vice versa)**
    No 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 that may be stated in a different way** but that may still be correct.

17. **Captions**
    All illustrations (diagrams, graphs, tables, etc.) must have captions.

18. **Code-switching of official languages (terms and concepts)**
    A single word or two that appears 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 for all official languages and is relevant where the language of instruction is not the home language of the candidate or where they find themselves in a double medium teaching situation.

19. **No change may be effected to any memorandum without consulting the SACAI chief marker and the SACAI MODERATOR, and, where applicable, the UMALUSI MODERATOR.**

SECTION A

QUESTION 1

1.1

1.1.1 C ✓✓
1.1.2 B ✓✓
1.1.3 D ✓✓
1.1.4 A ✓✓
1.1.5 B ✓✓
1.1.6 B ✓✓
1.1.7 D ✓✓
1.1.8 C ✓✓
1.1.9 D ✓✓ (9x2) **(18)**

1.2

1.2.1 Acrosome ✓
1.2.2 Conjunctiva ✓
1.2.3 Myelin sheath ✓
1.2.4 Parasympathetic ✓ nervous system
1.2.5 Scrotum ✓
1.2.6 Urethra ✓
1.2.7 Accommodation ✓
1.2.8 Endometrium ✓
1.2.9 Photoreceptors ✓ (9x1) **(9)**

1.3

1.3.1 Both ✓✓
1.3.2 None ✓✓
1.3.3 A only ✓✓
1.3.4 None ✓✓
1.3.5 B only ✓✓ (3x2) **(10)**

1.4

1.4.1 a) Endocrine ✓ glands (1)

b) They are transported by the bloodstream ✓ (1)

1.4.2 a) Thyroid ✓ gland (1)

b) Ovary ✓ /ovaries (1)

1.4.3 a) F ✓ Testis ✓ (2)

b) A ✓ Hypothalamus ✓ (2)

1.4.4 a) Islets of Langerhans ✓ (1)

b) Thyroxin ✓ (1)

c) Follicle stimulating hormone ✓ /FSH (1)

1.4.5
- Increases metabolic rate ✓ /cell metabolism
- Increases the activity of the nervous system ✓
- Increases the heart rate ✓
- Controls growth ✓ /organ development

(Mark first answer only)
(Any ONE correct answer) (1)

1.4.6 D ✓ (1)

(13)

TOTAL SECTION A: [50]

SECTION B

QUESTION 2

2.1

2.1.1 Negative feedback ✓ mechanism (1)

2.1.2
- Physical activity ✓ /any example e.g. running.
- Stressful situations ✓ /any example.

(Mark first answer only)
(Any ONE correct answer) (1)

2.1.3 a) Medulla oblongata ✓ (1)

b) Breathing muscles ✓ /Intercostal muscles/diaphragm/cardiac muscles (1)

2.1.4
- Breathing rate increases ✓
  Carbon dioxide is removed from the lungs/blood at a faster rate. ✓

  OR
- Heart rate increases. ✓
  Blood high in carbon dioxide is pumped at a faster rate to the lungs. ✓

(Any correct 1 x 2) (2)

2.1.5
- Regulation of blood glucose levels ✓
- Regulation of thyroxin levels ✓
- Maintenance of water balance ✓
- Temperature regulation ✓
- Blood pressure regulation ✓

(Mark first TWO answers only)
(Any TWO correct answer) (2)

2.1.6
- * Carbon dioxide concentration in blood will remain high. ✓ (compulsory mark)
- This will decrease the pH of the blood to below the normal level. ✓
- This will cause enzyme in the blood to denature✓/slow down the rate of chemical reactions in the body/chemicals reactions in body will stop.

(* Compulsory mark + any correct ONE answers) (2)

(10)

2.2

2.2.1 a) Blastocyst✓ / blastula ✓ (1)

b) Morula ✓ (1)

c) Graafian follicle ✓ (1)

2.2.2 Embryo ✓ (1)

2.2.3 a) Implantation ✓ (1)

b) Ovulation ✓ (1)

2.2.4
- E ✓ - (Presence of) placenta ✓ (2)

2.2.5
- Not enough progesterone to keep endometrium intact✓ /thickened with blood vessels.
- Implantation will not occur ✓ and therefore
- no pregnancy. ✓
- Endometrium lining will be shed out of uterus ✓ /miscarriage will occur.

(Any THREE correct answers) (3)

2.2.6
- Walls consist of smooth muscles. ✓
  That contracts to move ovum/sperm/zygote/blastocyst forward. ✓

  OR
- Inner wall lined with cilia. ✓
- Cilia make swaying movements to push ovum/sperm/blastocyst forward. ✓

(Mark first answer only)
(Any 1 x 2) (2)

(13)

2.3

2.3.1 a) External ✓ fertilisation (1)

b) Precocial ✓ (1)

2.3.2
- The eggs are laid and develop inside reed bamboo ✓ where they are protected against predators ✓ /environmental conditions.
- The male frog attends to the egg ✓ /good parental care of eggs by male frog to prevent dehydration ✓ /keep other males and predators from consuming the eggs.
- The eggs contain enough nutrients. ✓ /The eggs are large therefor the offspring are well developed when they hatch ✓ /offspring can move fast when they hatch/ offspring can find their own food when they hatch.

(Mark first TWO answers only) (4)
(Any correct 2 x 2)

(6)

2.4

2.4.1 a) Hammer ✓ /malleus (1)

b) Auditory canal ✓ (1)

c) Tympanic membrane ✓ /eardrum (1)

2.4.2
- It transmits sound vibrations✓
- from the auditory canal to the ossicles. ✓ (2)

2.4.3 a) A ✓ Pinna ✓ (2)

b) D ✓ Cochlea ✓ (2)

2.4.4 Cerebellum ✓ (1)

2.4.5
- Hearing aids amplify the sound ✓ /make sounds louder.
- Cochlear implants change sound waves into electric impulses. ✓ (2)

2.4.6
- Improves communication ✓ with parents/teachers/friends.
- Improves language skills ✓ /spoken language/learning processes. (2)

(14)

2.5

2.5.1 Adrenal ✓ gland (1)

2.5.2
- Increases the muscle tone of skeletal muscles ✓ so that muscles can react faster. ✓
- Stimulates conversion of glycogen in the liver to glucose ✓ so that there is more glucose in blood ✓ / for more energy release by the muscle cells.
- Increases the heart rate ✓ so that there are higher levels of oxygen and glucose ✓ /more blood reaches the cells/ higher rate of cell respiration to release more energy.
- Increase in rate and depth of breathing ✓ resulting in the increase in the oxygen concentration ✓ /increases the rate of cell respiration /release of energy by the muscle cells.
- Vasoconstriction of blood vessels to the skin and digestive system ✓ resulting in more glucose and oxygen reaching the skeletal muscles ✓ /for faster energy release through cell respiration.
- Vasodilation of blood vessels to the brain ✓ /skeletal muscle so that more oxygen reaches brain for mental alertness ✓ during the race.

(Mark first THREE answers only)
(Any correct 3 x 2) (6)

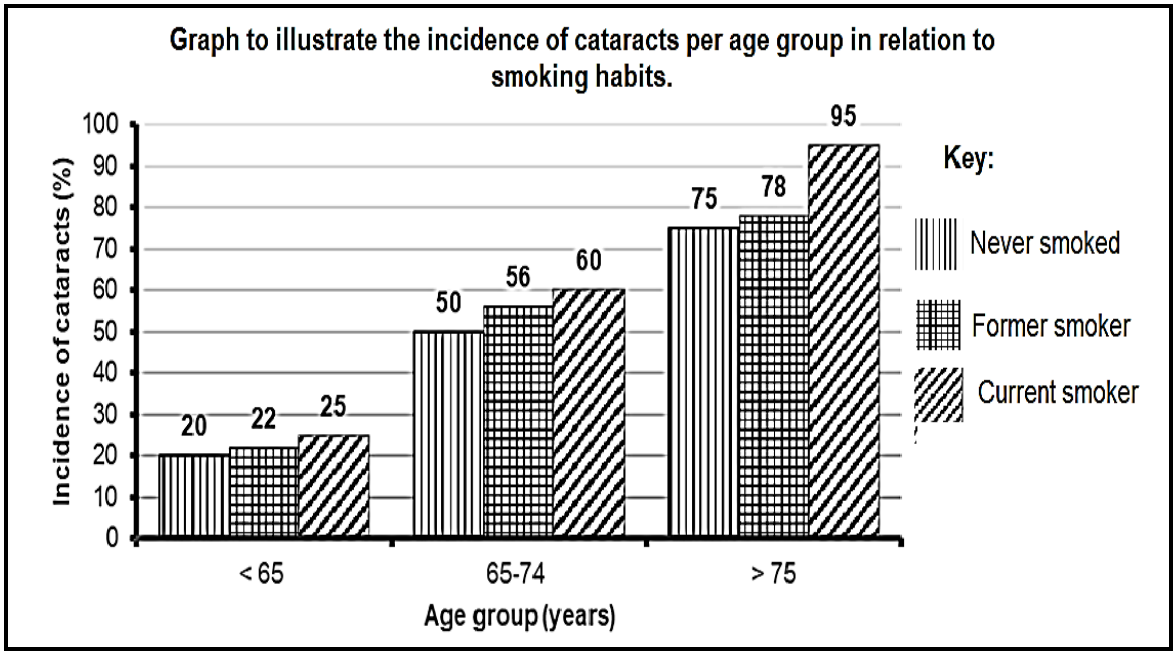
(7)

TOTAL QUESTION 2: [50]

QUESTION 3

3.1

3.1.1



CRITERIA	ELLABORATION	MARK
Caption **(C)**	Include all variables - Incidence of cataracts - Age group - Smoking habits	1
Type **(T)**	Bar graph with spaces	1
Labels **(L)**	X- and Y-axis correctly labelled with units	1
Scale **(S)**	Scaling constant for Y-axis and equal spacing and width of bars for X-axis	1
Plotting **(P)**	1 set of bars correctly plotted 2 sets of bars correctly plotted 3/all sets of bars correctly plotted	1 2 3

(7)

3.1.2
- The lens ✓ of the eye
- becomes cloudy ✓ /less transparent.
- Less or no light passes through to the retina. ✓
- Vision is blurry ✓ /cloudy/no vision/change in colour vision. (4)

3.1.3
- Increase in age ✓
- Diabetes ✓
- Exposure of eyes to too much sunlight ✓ (Any TWO correct answers) (2)

(Mark first TWO answers only)

3.1.4
- Surgery to remove clouded lens ✓ /Replacing lens with a plastic lens (1)

(Mark first answer only)

(14)

3.2

3.2.1
- The same type of lettuce plants. ✓
- The plants were exposed to the same environmental conditions ✓ /same temperature/ same amount of sunlight.
- The same volume of nutrient solution. ✓ (2)

(Mark first TWO answers only)
(Any TWO correct answers)

3.2.2 475 ✓ cm^3 ✓ (accept 470 – 480 cm^3) (2)

3.2.3
- The higher the gibberellin concentration ✓
- the larger the leaf area ✓
- and greater the number of leaves ✓ in lettuce plants. (3)

3.2.4 a)
- The use of higher gibberellin concentration will increase the leaf area/size and number of leaves in lettuce plants ✓ which will
- increase the rate of photosynthesis. ✓
- The plants will grow faster ✓ /more growth
- This will increase the yield of their crop ✓ /income.

(Any THREE correct answers) (3)

b)
- This solution is the control ✓ /
- It is used to prove that the increase in leaf size and leaf number is due to the use of gibberellin. ✓ (2)

3.2.5
- Stimulates germination of seeds ✓
- Stimulates flowering in plants ✓
- Breaks dormancy in buds ✓

(Mark first answer only)
(Any ONE correct answer) (1)

(13)

3.3

3.3.1
- Seminal vesicles ✓
- Prostate gland ✓
- Cowper's glands ✓

(Mark first TWO answers only)
(Any TWO correct answers) (2)

3.3.2
- Release of semen ✓ /seminal fluid and sperm
- from the penis. ✓ (2)

3.3.3 Age of males ✓ (1)

3.3.4 None of the age groups ✓ (1)

3.3.5
- All age groups release over 39 million sperm cells per ejaculation ✓✓ that is needed to be fertile

OR

- All age groups release more than the minimum required number of sperm per ejaculation. ✓✓ (2)

3.3.6 Age group 43 - 49 years ✓ (1)

3.3.7 No ✓ (1)

3.3.8
- Different number of males per age group ✓✓ /sample groups not the same size.
- Outlier data/data that differs significantly from other data will have a bigger influence in smaller sample groups than in the bigger sample groups. ✓✓

(Any 1 x 2) (2)

3.3.9 $\frac{150}{60}$ ✓ $= 2{,}5$ times ✓ (2)

(14)

3.4

3.4.1 a) Cerebrum ✓ (1)

b) Cerebrospinal fluid ✓ (1)

c)
- Protects the brain tissue from mechanical injury✓/acts as a shock absorber.
- Remove waste products from the brain. ✓
- Provides nutrients to brain tissue. ✓

(Mark first TWO answers only)
(Any TWO correct answers) (2)

3.4.2
- Folds ✓

OR

- Grooves ✓

(Mark FIRST answer only)
(Any ONE correct answer) (1)

3.4.3 a) Cranium ✓ (1)

b) Meninges ✓ (1)

3.4.4 a) No movement of the arm ✓ (1)

b) Balance will be maintained ✓ /no effect on the balance (1)

(9)

TOTAL QUESTION QUESTION 3: [50]

TOTAL SECTION B: [100]

GRAND TOTAL: [150]

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