



**education**

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Department:  
Education  
**REPUBLIC OF SOUTH AFRICA**

## **SENIOR CERTIFICATE EXAMINATION - 2008**

**BIOLOGY P1**

**STANDARD GRADE**

**MAY/JUNE 2008**

**MEMORANDUM**

**MARKS: 150**

**This memorandum consists of 9 pages.**

# PRINCIPLES RELATED TO MARKING HG & SG BIOLOGY 2008

This document should be attached to all memoranda, attached to all updated guidelines that are distributed in 2007, and made available to ALL Biology teachers early in 2008.

- 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 whole process is given when only part of it is required**  
Read all and credit relevant part.
- 4. If comparisons are asked for and 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.
- 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 is 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 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 the word does not mean something else in Biology or if it is out of context.

13. **If common names given in terminology**  
Accept provided it is accepted at *this* memo discussion.
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. 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. If you have doubts consult the other language memo. If you still have doubts ask the Provincial Internal Moderator to contact the National Internal Moderator or the External Moderators.
19. **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 to all official languages.
20. No changes may be made to the marking memoranda without consulting the Provincial Internal Moderator who in turn will consult with the External Moderator/s.
21. Only memoranda bearing the signatures of the UMALUSI moderators and distributed by the National Department of Education via the Provinces may be used.

**SECTION A****QUESTION 1**

1.1.1 B✓✓

1.1.2 D✓✓

1.1.3 A✓✓

1.1.4 A✓✓

1.1.5 C✓✓

1.1.6 D✓✓

1.1.7 D✓✓

7 X 2 (14)

1.2.1 ATP✓

1.2.2 Alveolus ✓

1.2.3 Aerobic respiration✓

1.2.4 Scurvy✓

1.2.5 Bicarbonate ions✓

5 X 1 (5)

1.3.1 E✓✓

1.3.2 H✓✓

1.3.3 K✓✓

1.3.4 F✓✓

1.3.5 D✓✓

1.3.6 I✓✓

1.3.7 A✓✓

1.3.8 C✓✓

8 x 2 (16)

- 1.4.1 A - Ethanol✓/alcohol (1)  
B - Iodine solution✓ (1)  
**(Mark first ONE only)**
- 1.4.2 To remove chlorophyll✓ from the leaves (1)
- 1.4.3 Uncovered✓ (1)
- 1.4.4 Do not boil the alcohol directly over a flame✓✓/ boil the test tube with alcohol in a water bath/ use forceps to remove the leaf from the hot alcohol and boiling water  
**(Mark first ONE only)** (2)  
**(6)**
- 1.5.1 Villus✓ (1)
- 1.5.2 (a) Small intestine✓ (1)  
(b) columnar✓ (1)
- 1.5.3 C - Arteriole✓ (1)  
D - Capillaries✓ (1)
- 1.5.4 Hepatic portal vein✓ (1)
- 1.5.5 - Serves as a lubricant in the alimentary canal✓  
- Is the solvent of most products of digestion✓  
- Serves as a reactant in hydrolysis of food✓  
- All digestive reactions occur in a watery solution✓  
- Assists in the transport of absorbed nutrients✓  
- Assists in the transport of unabsorbed waste products✓  
**(Mark first THREE only)** (3)  
**(9)**

**TOTAL SECTION A: 50**

**QUESTION 2**

- 2.1.1 (a) A ✓  
(b) H ✓  
(c) B ✓ / C / D / E  
(d) C ✓  
(e) E ✓ (5)
- (Mark first ONE only)**

- 2.1.2 - Produces bile ✓  
- Produces and stores glycogen ✓  
- Stores fat ✓  
- Deamination of amino acids ✓  
- Detoxification ✓  
- Produces vitamin A ✓  
- Stores vitamin A, D, iron ✓  
- Changes glycerol into glucose  
**(Mark first THREE only)** (3)

- 2.1.3 - Is long ✓ for maximum absorption of digested food. ✓  
- Has many villi ✓ to increase the surface area for food absorption ✓  
- Thin ✓ columnar epithelium to allow the digested food to be in close contact with the villi. ✓  
- Is well supplied with blood vessels and lacteals ✓ to transport the absorbed food nutrients. ✓  
- Is coiled/folded ✓ to allow food to remain in the small intestine longer ✓ / for maximum absorption.  
- Is moist / has mucous ✓ to facilitate / speed up absorption ✓ / for quicker diffusion.  
**(Mark first TWO only)** (4)

- 2.1.4 (a) Stomach ✓  
(b) Gall bladder  
(c) Pancreas ✓ (3)

2.2.1 2 ✓ g ✓ (2)

2.2.2 Starch is digested into glucose ✓ ✓ (2)

2.2.3 Amount of fats stays the same from mouth to stomach ✓ but changes in the small intestine ✓ / Stays at 5 g in the stomach and 1 g in the small intestine (2)

2.2.4 Fatty acids ✓ and glycerol. ✓ (2)  
**(Mark first TWO only)**

2.2.5 (30g - 10g) ✓ = 20g ✓ (2)

**TOTAL QUESTION 2 (25)**

**QUESTION 3**

- 3.1.1 (a) Epidermis✓ – to allow light to enter the leaf✓/ to prevent /reduce the amount of water vapour loss by the leaf / to protect the underlying tissues  
 (b) Chloroplast✓ – to manufacture food✓/ photosynthesis  
 (c) Xylem✓ – to transport water✓ (6)

- 3.1.2 No✓/Partially correct (1)  
 During the day, respiration and photosynthesis occur ✓  
 photosynthesis requires carbon dioxide✓ and releases oxygen✓  
 respiration requires oxygen✓ and releases carbon dioxide.✓. At night it is correct: there is no photosynthesis but respiration occurs✓ and this requires oxygen✓ and releases carbon dioxide.✓  
 Any 3 (3)

3.1.3

<b>B (Palisade mesophyll)</b>	<b>E (Spongy mesophyll)</b>
Rectangular/elongated✓	More rounded/oval shaped✓
Contain more chloroplast✓	Contain less chloroplast✓
Closely packed✓/small air spaces	Loosely packed✓/large air spaces

**(Mark first TWO only)** 2 x 2 + 1 for table (5)

- 3.2.1 To investigate whether carbon dioxide✓ is released during cellular respiration✓ (2)
- 3.2.2 A – Foam rubber✓/ porous sponge - to prevent the germinating seeds from sinking into the lime water✓✓ (3)
- 3.2.3 Lime water is used to indicate the presence of carbon dioxide✓✓ (2)
- 3.2.4 Clear lime water turns milky✓ (1)
- 3.2.5 Set up the same apparatus and use dead and sterilised seeds✓✓/ use no seeds (2)

**TOTAL QUESTION 3 (25)**

**QUESTION 4**

- 4.1.1 (a) - Needed in haemoglobin✓/ electron carrier in respiration  
**(Mark first ONE only)** (1)
- (b) - Building of bone, teeth✓/ involved in muscular contraction/  
normal function of nervous system / clotting of blood  
**(Mark first ONE only)** (1)
- (c) - Promotes growth✓ / carbohydrate metabolism / part of  
co-enzymes in cellular respiration / healthy skin / promote  
healthy appetite and prevents constipation / Formation of red  
blood corpuscles  
**(Mark first ONE only)** (1)
- 4.1.2 209,1✓ mg✓ (2)
- 4.1.3 Both fats and proteins are building materials for cells and  
muscles✓ whereas carbohydrates mainly provide energy✓  
**OR**  
Fats and proteins are required ✓ because the person has lost body  
mass ✓ because of anorexia. (2)
- 4.1.4 Anorexia is a mental state ✓ which is difficult to control at home✓ /  
Anorexic patients need to be controlled /weighed regularly/  
Anorexic patients will not eat on their own. 1 + any 1 (2)
- 4.2.1 A - larynx✓ / thyroid cartilage  
B - trachea✓  
C - bronchioles✓ (3)
- 4.2.2 Process 1✓ (1)
- 4.2.3 - Ribs are lifted✓✓ / chest cavity expands/ moves outwards  
- Thoracic cavity enlarges✓✓ / lungs are larger  
- Diaphragm contracts✓✓ / flattens/ moves downwards  
**(Mark first TWO only)** (4)
- 4.2.4 D✓ – intercostal muscle✓  
E✓ - diaphragm✓ (4)
- 4.2.5 medulla oblongata✓ (1)
- 4.3 - large surface area✓  
- moist area✓  
- thin gaseous exchange surface✓  
- sufficient ventilation✓ / transport medium in close contact  
with atmosphere  
- sufficient protection✓  
- well supplied with blood vessels✓  
**(Mark first THREE only)** (3)

**TOTAL QUESTION 4 (25)**

**QUESTION 5**

- 5.1.1 Logistic growth form✓ / S-shaped (1)
- 5.1.2 C - equilibrium✓ / stationary phase  
E - lag✓ / establishment phase (2)
- 5.1.3 Organisms are adapting to the environment✓✓ / look for mating partners (2)
- 5.1.4 D✓ (1)
- 5.1.5 The organisms have reached carrying capacity✓/  
remains constant / environmental resistance increases (1)  
**(Mark first ONE only)**
- 5.1.6 (a) B ✓ (1)  
(b) A ✓ (1)
- 5.2  $(F + U) = C - (P + R)$  ✓  
 $= 9\ 000\ \text{kJ} - (5\ 000\ \text{kJ} + 2\ 500\ \text{kJ})$  ✓  
 $= 1\ 500\ \text{kJ}$  ✓ (4)
- 5.3.1 Population is a group of organisms of the same species✓  
occupying a particular area✓ at a particular period✓ allowing  
random interbreeding✓ (4)
- 5.3.2 (a) Birth rate ✓ (1)  
(b) Death rate✓ (1)
- 5.3.3 Natality rate must equal mortality rate✓✓ (2)
- 5.4.1 Food production = 600✓tons✓ (2)
- 5.4.2 As human population / natality rate increases,✓the food production  
also increases✓ / Direct relationship (2)

**TOTAL QUESTION 5: 25**  
**GRAND TOTAL: 150**