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KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 11

LIFE SCIENCES

MARKING GUIDELINE

COMMON TEST

JUNE 2024

MARKS: 150

This marking guideline consists of 8 pages.

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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.

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SECTION A

QUESTION 1

1.1
1.1.1 B✓✓
1.1.2 C✓✓
1.1.3 D✓✓
1.1.4 D✓✓
1.1.5 B✓✓
1.1.6 D✓✓
1.1.7 C✓✓
1.1.8 A✓✓
(8 x 2) **(16)**

1.2
1.2.1 Cephalisation✓
1.2.2 Mesoderm✓
1.2.3 Asexual✓ reproduction/ Vegetative
1.2.4 Adenosine triphosphate✓/ ATP
1.2.5 Iodine✓ solution
1.2.6 Enzymes✓
1.2.7 Seed ✓
1.2.8 Pathogens✓
(8 x 1) **(8)**

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

1.4
1.4.1 (a) Stigma✓ (1)
(b) Petals✓/sepals (1)

1.4.2 **M**✓ Ovary✓ (2)

1.4.3 Produces pollen grains✓ (1)

1.4.4 Stamen✓ (1)

1.4.5
- Anthers are hanging outside the flower ✓
- to allow pollen grains to be easily carried by wind ✓
- Anthers are large ✓
- to produce many pollen grains ✓
- Filaments are long ✓
- to sway in the wind ✓
- Stigma is large and feathery ✓
- to trap as much pollen as possible✓
- Petals are reduced ✓
- to expose the stamens and stigma to wind ✓(Any 2 x 2) (4)

(Mark the FIRST TWO only)

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1.4.6
- Ensure food security✓
- Conserves biodiversity✓
- Conservation of endemic species✓
- Conservation of endangered species✓
- Conservation of plants with medicinal values✓
- Preservation of seeds that are resistant to pest/harsh weather condition✓/ with good quality Any (1)

(Mark the FIRST ONE only) **(11)**

1.5 1.5.1 Cladogram✓/ Phylogenetic tree (1)

1.5.2 Charophyte algae✓ (1)

1.5.3 Both have xylem and phloem✓/ vascular tissues (1)

1.5.4 350✓ MY✓/ million years (2)

1.5.5
- Depends on water for sexual reproduction✓
- No vascular tissues✓/no xylem and phloem (2)

(Mark the FIRST TWO only)

1.5.6
- Flowers attract pollinating agents✓/ pollinators
- Hence increased chances of fertilization✓ (2)

(9)

TOTAL SECTION A: [50]

SECTION B

QUESTION 2

2.1 2.1.1 Chloroplast✓ (1)

2.1.2 (a) Granum✓/ grana (1)
(b) Double membrane✓/outer membrane (1)

2.1.3 (a) H^+ atoms/ high energy hydrogen atoms✓ (1)
(b) glucose✓ (1)

2.1.4
- Source of H atoms✓
- and oxygen atoms✓
- H atoms to form carbohydrates✓
- Oxygen atom to form oxygen as a gas✓ (4)

2.1.5
- Other requirements for photosynthesis✓
- Maybe in short supply✓

OR

- Large increase in carbon dioxide makes the PH acidic✓
- Enzyme controlling the process is damaged✓ (Any 1 x 2) (2)

(11)

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2.2 2.2.1 C✓ Pancreas✓ (2)
D✓ Small intestine✓ (2)
B✓ Stomach✓ (2)

2.2.2 The liver (E) converts stored glycogen✓ to glucose✓ (2)

2.2.3
- Salivary glands produce saliva✓
- which contains carbohydrases✓
- to breakdown of carbohydrates/ polysaccharides/ starch into maltose✓/ disaccharides (3)

2.2.4
- Poor absorption of nutrients✓
- thus, some nutrients will move with the undigested foods into colon✓

OR

- The rate of digestion would be slow✓
- Some food particles would not be digested✓

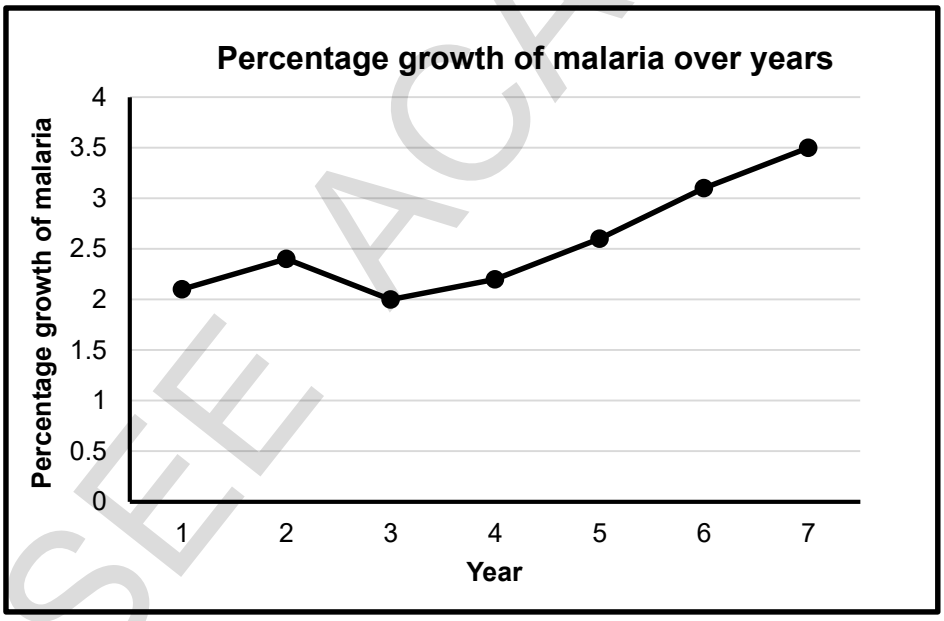
OR

- Part D/ small intestine will constrict✓/ be blocked
- food movement reduced✓or stopped (Any 1 x 2) (2)

(13)

2.3 2.3.1 Plasmodium✓ (1)

2.3.2



Criteria for marking the graph:

Criteria	Mark allocation
Line graph is drawn (**T**)	1
Caption of the graph includes both variables (**C**)	1
Correct labels on the X-axis and Y-axis with correct unit on the Y-axis (**L**)	1
Correct scale for X-aixs and Y axis (**S**)	1
Plotting (**P**) correctly done for: 1 – 6 years 7 years	 1 2

(6)

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2.3.3 - Percentage growth of malaria increased in the first 2 years✓
- and then dropped in year 3✓
- then increased again from year 4 to year 7✓ (3)

2.3.4 5 and 6✓ (1)

2.3.5 Hospital✓/clinic records (1)
(Mark the FIRST ONE only)

2.3.6 To destroy the vector✓ (1)
(Mark the FIRST ONE only)

2.3.7 - Antibiotics is used to treat diseases caused by bacteria ✓
- Malaria is caused by protista ✓ (2)
(15)

2.4 2.4.1 The entry of pathogens✓/ disease causing microorganism into the body. (1)

2.4.2 Active✓ immunity (1)

2.4.3 - The pathogens/antigens enter the body in diagram A✓
- The body/white blood cells produces antibodies in diagram B✓
- The antibodies fight/kill the pathogens in diagram C✓
- Antibodies remain in the body as memory cells for future infection in diagram D✓ (4)

2.4.4 - Mucus in the nose and throat✓
- Cilia lining the nasal passages and trachea✓
- Tears and conjunctiva of the eye✓
- Hydrochloric acid in the stomach✓
- Unbroken skin✓ Any (2)
(Mark the FIRST TWO only)

2.4.5 - Vaccination✓
- Education programmes like posters✓ / TV
- Isolation of sick people from public✓
- Free public health/Medicines if sick✓
- Home assistance for sick people✓ Any (3)
(Mark the FIRST THREE only) **(11)**
[50]

QUESTION 3

3.1 3.1.1 (a) Gut✓ (1)
(b) Ectoderm✓ (1)

3.1.2 Animalia ✓ (1)

3.1.3 Body plan **C**✓ (1)

3.1.4 Triploblastic✓ (1)

3.1.5 Exoskeleton✓ (1)

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3.1.6 - The shrimp is bilaterally symmetrical✓
- with the concentration of sense organs at the head region✓
- allowing for more efficient forward movement✓ (3)

3.1.7 - Provides space✓ for development of internal organs✓
- Contains fluid✓ which acts as hydrostatic skeleton✓
- The fluid cushions internal organs✓ protecting them from injury✓
- Separates gut wall from body wall✓ enabling to function independently✓ (Any 2 x 2) (4)

(Mark the FIRST TWO only) **(13)**

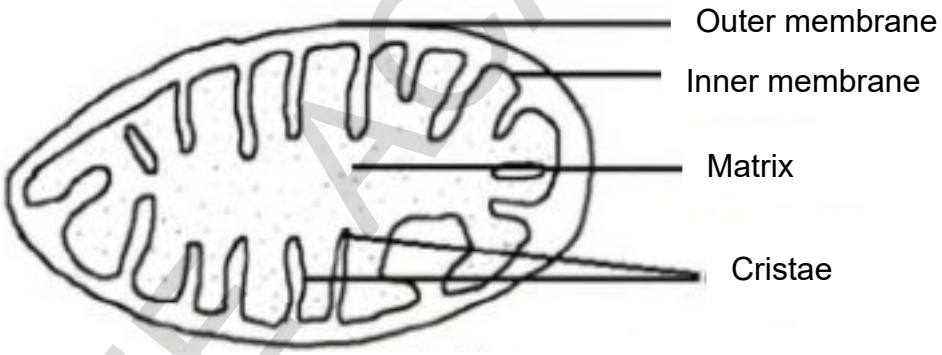
3.2 3.2.1 - Glucose is broken down✓
- To form 2 pyruvic acid✓
- Energy-rich hydrogen atoms (H^+) are released✓
- Some energy released is used to form 2 ATP molecules✓
- Process is controlled by enzyme✓ Any 4 (4)

3.2.2 ✓*

Aerobic respiration	**Anaerobic respiration**
- 38 / more ATP produced✓	- 2 / less ATP produced✓
- CO_2 and water are produced✓	- lactic acid is produced✓

(1* compulsory mark for the table + 4) (5)

3.2.3



Structure of mitochondrion

Criteria for marking the diagram

Criteria	**Mark allocation**
Caption (**C**)	1
Labels (**L**)	3

(4)

(13)

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3.3 3.3.1
- Method of cultivating crops within an enclosed structure ✓
- In which optimal growing environment ✓ is created and maintained for crops (2)

3.3.2
- Temperature✓
- Humidity✓
- Light levels✓ Any (2)

(Mark the FIRST TWO only)

3.3.3
- Crops are grown throughout the year/ year-round cultivation ✓
- Provides ideal conditions required for each specific crop ✓
- Enhances crop growth ✓
- reduces the risk of pest and diseases. ✓
- Increased crop yield/ better crop quality ✓
- continuous reliable supply of fresh produce ✓
- There is increase in food security ✓ Any (5)

(9)

3.4 3.4.1 (a) Rate of digestion✓ (1)

(b) By determining bowel transit time✓ (1)

3.4.2
- Ensure foods already in the colon✓
- are digested before the investigation✓

OR

- Ensure there is no food in the colon✓
- before the investigation✓ Any (2)

3.4.3
- Participants were all teenage boys✓
- All boys have no health conditions✓
- All boys fasted 8 hours before the investigation✓
- Same plate size food given✓
- Each drank 500ml of water✓
- All did not engage in physical activities after the meals✓ Any (3)

(Mark the FIRST THREE only)

3.4.4 Average bowel transit time was calculated in each group✓ (1)

3.4.5 $\frac{196}{28}$✓ = 7✓ times (3)

3.4.6
- Investigation will not be valid✓
- Physical activities needs more energy✓/ rate of digestion will be increased (2)

3.4.7 Cheese has highest rate of digestion✓✓

OR

Fruits have lowest rate of digestion✓✓ (2)

(15)

[50]

TOTAL SECTION B: 100

GRAND TOTAL: 150

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