SimpleStudy®

Education and Sport Development
Department of Education and Sport Development
Departement van Onderwys en Sportontwikkeling
Lefapha la Thuto le Tlhabololo ya Metshameko
NORTH WEST PROVINCE

NATIONAL SENIOR CERTIFICATE

GRADE 11

LIFE SCIENCES MARKING GUIDELINE

JUNE EXAMINATION

2019

MARKS: 150

This Marking Guideline consists of 11 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 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.

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 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 ifit is out of context.

13. **If common names are given in terminology**
    Accept, provided it was accepted at the national memo discussion meeting.

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14. **If only letter is asked for but only 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, drawings, graphs, tables, etc.) must have a caption.

18. **Code-switching of official languages (terms and concepts)**
A single word or two that appears in any official language other than the learner's assessment language used to the greatest extent in his/her answers should be credited, provided it is correct. A marker that is proficient in the relevant official language should be consulted. This is applicable to all official languages.

SECTION A

QUESTION 1

1.1

1.1.1 D✓✓
1.1.2 D✓✓
1.1.3 C✓✓
1.1.4 B✓✓
1.1.5 B✓✓
1.1.6 B✓✓
1.1.7 C✓✓
1.1.8 C✓✓
1.1.9 B✓✓
1.1.10 D✓✓ **(20)**

1.2

1.2.1 Virus✓
1.2.2 Radiant energy✓
1.2.3 Radial✓
1.2.4 Moulting✓/Ecdysis
1.2.5 Testa✓/seed coat
1.2.6 Meiosis ✓
1.2.7 Bolus✓ **(7)**

1.3

1.3.1 Both A and B✓✓
1.3.2 A only✓✓
1.3.3 B only✓✓ **(6)**

1.4 1.4.1 A → B ✓ (1)

1.4.2 Arthropoda✓
Chordata✓
Annelida✓ **(Any 2)** (2)

1.4.3 X − Mesoderm✓
Y − Coelom ✓ (2)

1.4.4 - Provides space ✓for the development of internal organs.✓
- Separates the gut wall from the body wall✓ enabling them to function independently of each other.✓
- The fluid within the body cavity acts as hydrostatic skeleton✓ assisting the animals with locomotion. ✓ (Any 2x2) (4)

1.4.6 A✓ (1)

1.4.6 Allows animals that are sessile / attached to collect food coming from any direction ✓since they cannot move.✓
OR
Allows animals that are sessile to react to danger from any direction,✓since they cannot turn to face the danger.✓ (2)
(10)

1.5 1.5.1 Palisade mesophyll✓
Spongy mesophyll✓
Guard cells✓ (Any 2x1) (2)

1.5.2 C Stroma✓
B Starch grain✓ (2)

1.5.3 Granum /Grana / Thylakoid✓ (1)
(5)

TOTAL SECTION A: 50

QUESTION 2

2.1

2.1.1 Oesophagus✓ (1)

2.1.2 Peristalsis✓ (1)

2.1.3 P Liver/Pancease✓ (Any Order) (1)
Q Pancease/Liver✓ (Any Order) (1)

2.1.4 Stomach✓ (1)
(5)

2.2

2.2.1 Carbon dioxide is released ✓ during anaerobic respiration✓ (2)

2.2.2 To ensure that all micro-organisms are killed✓/ to eliminate any other organisms / to ensure that the carbon dioxide present is only produced by the germinating seeds. (1)

2.2.3 Same kinds of seeds✓
Constant temperature✓
Apparatus kept in the dark✓ (Any 2) (2)
(**Mark the first TWO)**

2.2.4 - The apparatus would be set up in the exact same way✓
- except by using no seeds✓ / seeds that were boiled
- To ensure that the changes observed in the investigation were caused by the cellular respiration/germinating seeds✓ (3)

2.2.5 - Germinating seeds need a lot of energy for growth✓
- and the rate of cellular respiration will be high✓
- more carbon dioxide released✓
- achieving better results✓ (Any 2) (2)

(**10)**

2.3

2.3.1 Female *Anopheles* mosquito ✓ (1)

2.3.2 They become immune to the DDT and Dieldrin ✓ (1)

2.3.3 They are non-biodegradable ✓and toxic ✓ (2)

2.3.4 Biological control ✓ (1)

2.3.5

- Remaining indoors during dark ✓
- Wearing long-sleeved clothes, long trousers and socks ✓
- Keeping windows and doors closed at night or protecting the areas with screens ✓
- Sleeping under a mosquito net ✓
- Using mosquito mats or burning mosquito coils to keep the mosquitoes away ✓
- Treating clothing with approved insecticides ✓
- Applying an insect repellent to exposed skin; avoid contact with lips, eyes, sun burnt or damaged skin ✓ **(Any 3 x 1)** (3)

2.3.6 A female Anopheles mosquito bites an infected person✓; the parasite is sucked in ✓and develops further in the alimentary canal✓ of the vector and multiplies in the salivary glands ✓of the mosquito until it bites another person ✓ transferring the parasite, which will now multiply in the liver and red blood cells ✓ (any 4) (4)
(12)

2.4

2.4.1 A Pteridophytes✓
C Gymnosperms✓ (2)

2.4.2 Gametophyte✓ (1)

2.4.3 1 compound leaf✓
6 Stem-like structure✓
8 Female cone✓ (3)

2.4.4 Prothallus✓ (1)

2.4.5
- Seeds have tough coat which prevent drying out ✓
- Seeds have a food reserve✓ for developing embryo
- Seeds have fully developed embryo✓ to immediately start growing when conditions becomes favourable
- Seeds have longer lifespan✓ than spores
- Seeds can remain dormant ✓ longer than spores (2)

(**Mark the first TWO)**

2.4.6 The male gamete✓/ pollen grains are dispersed by wind✓ to the female bracts of cones,✓ where they fertilise the exposed ova.✓ (4)
(13)

TOTAL QUESTION 2: 40

QUESTION 3

3.1

3.1.1 Rate of photosynthesis✓ (1)

3.1.2 0, 14✓% ✓ (2)

3.1.3 - Amount of water✓
- Temperature✓
- Light ✓ **(Mark the first TWO only)** (2)

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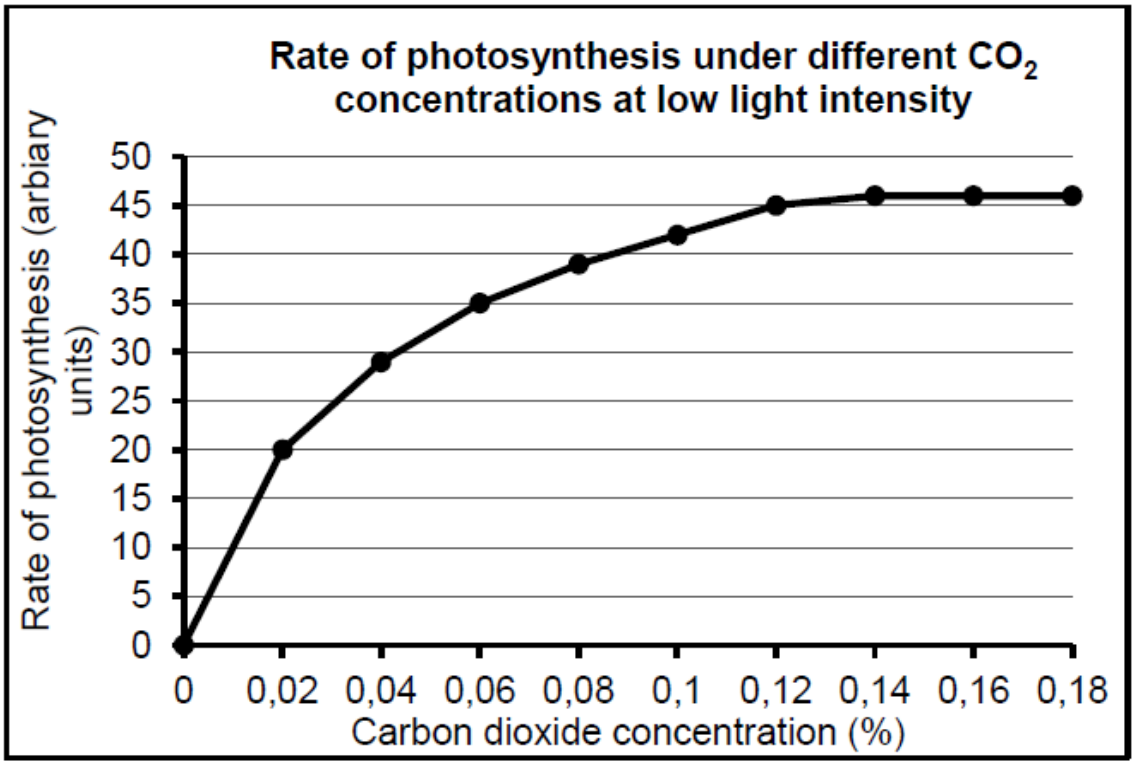
3.1.4



(6)

Guideline for the assessing of the graph

Line graph is drawn	1
Title of the graph (includes both variables)	1
Correct scale for x-axis and y-axis	1
Correct labels and units for the x-axis and the y-axis	1
Plotting of bars	1: 1–5 points correct 2 : All points correct

NOTE: If axes are transposed, marks will be lost for labelling X- axis and Y-axis.

(11)

3.2 3.2.1 A Slime capsule/layer✓
B Cell wall✓ (2)

3.2.2 D Contain hereditary information ✓
G Responsible for movement/locomotion✓ (2)

3.2.3 It protects the bacterium against the enzymes secreted by the host.✓ (1)

3.2.4

- A plasmid (ring-shaped DNA) is removed from the bacterium
- *E. coli.* ✓
- Special enzymes (restriction enzymes) are used to cut the plasmid DNA of *E.coli.* ✓
- A human gene of insulin is inserted into the plasmid✓/ *E.coli* DNA.
- The plasmid and human gene of insulin join to form recombinant DNA. ✓
- The *E.coli* bacterium starts to reproduce. ✓
- producing many insulin producing bacteria. ✓
- The insulin is extracted, ✓
- purified and sold to treat diabetes. ✓

(Any 5x1) (5)

(10)

3.3 3.3.1 A Glycolysis ✓
B Kreb's cycle✓
C Oxidative phosphorylation✓ (3)

3.3.2 Mitochondrion✓ (1)

3.3.3 2 Carbon dioxide✓
3 Water✓ (2)

3.3.4 Glucose✓ (1)

3.3.5

T✓

AEROBIC RESPIRATION	**ANAEROBIC RESPIRATION**
Requires oxygen✓	Independent of oxygen✓
Takes place in the cytosol and mitochondria✓	Takes place in the cytosol only✓
By- products are carbon dioxide and water✓	By- products are carbon dioxide and ethanol in plants and lactic acid in animals ✓
Releases large amount of energy✓	Releases little energy ✓

Any 2x2 + 1 for table (5)

3.3.6 It undergoes lactic acid fermentation/aerobic respiration✓ and becomes converted to lactic acid in muscle cells.✓ **(Any 2x1)** (2)

(14)

3.4 3.4.1 Cross pollination✓
The transfer of pollen from the anther of one plant to the stigma of a different plant is✓ ✓ (3)

3.4.2 A Stigma✓ (1)
B Anther✓ (1)

(5)

TOTAL QUESTION 3: 40

SECTION C

QUESTION 4

When abnormal levels of glucose are detected✓
- by the pancreas✓,
- the Islets of Langerhans✓ secretes hormones
- into the bloodstream✓

When blood glucose level rises✓
- Insulin✓ is secreted
- to decrease the blood glucose level✓
- back to normal✓
- insulin secretion is then inhibited✓

When blood glucose level falls✓
- Glucagon✓ is secreted
- to increase the blood glucose level✓
- back to normal✓
- glucagon secretion is then inhibited✓

(Any 13) (13)

Causes of diabetes
- inadequate secretion✓
- Non-secretion of insulin✓
- Production of defective insulin✓
- Body cells resistant to the action of insulin✓
- Inability of the cells to use glucose efficiently✓ **(Any 2)** (2)

Symptoms of diabetes
- Glucose present in urine✓
- Constant /extreme thirst✓
- Frequent urination✓
- Blurred vision✓

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- nausea/vomiting✓
- weight loss✓
- non-healing wounds✓ **(Any 2)** (2)
- fatigue✓
-

ASSESSING THE PRESENTATION OF THE ESSAY

Criterion	**Relevance**	**Logical sequence**	**Comprehensive**
Elaboration	All information provided is relevant to the topic	Ideas are arranged in a logical/cause-effect sequence	All aspects required by the essay have been addressed
	Only information relevant to Principle of negative feedback and causes and the symptoms of diabetes (There is no irrelevant information)	Principle of negative feedback and causes and the symptoms of diabetes are presented in the correct sequence.	Principle of negative feedback **10/13** Causes**1/2** and the symptoms**1/2** of diabetes.
Mark	1	1	1

TOTAL SECTION C: 20

GRAND TOTAL: 150

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