GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

EXEMPLAR 2

2020

LIFE SCIENCES

MAY/JUNE

MARKING GUIDELINE

GRADE : 11

MARKS: 150

NUMBER OF PAGES : 10

GAUTENG DEPARTMENT OF EDUCATION

EXEMPLAR

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 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 becomes correct again, resume credit.

9. **Non-recognised abbreviations**
   Accept if first defined in answer. If not defined, do not credit the unrecognized 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 recognizable accept provided it does not mean something else in Life Sciences or if it is out of context.

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

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. **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.

19. No changes must be made to the marking memoranda without consulting the Provincial Internal Moderator who in turn will consult with the National Internal Moderator (and the External moderators where necessary)

SECTION A

QUESTION 1

1.1	1.1.1	C✓✓		
	1.1.2	B✓✓		
	1.1.3	A✓✓		
	1.1.4	A✓✓		
	1.1.5	C✓✓		
	1.1.6	A✓✓		
	1.1.7	A✓✓		
	1.1.8	D✓✓		
	1.1.9	D✓✓		
	1.1.10	C✓✓	(10 x 2)	**(20)**
1.2	1.2.1	Ovary✓		
	1.2.2	Cone✓		
	1.2.3	Peristalsis✓		
	1.2.4	Photolysis✓		
	1.2.5	Testa✓		
	1.2.6	Vector✓		
	1.2.7	Chloroplast✓		
	1.2.8	Carbon dioxide✓		
	1.2.9	Zygote✓		
	1.2.10	Anther✓/pollen sac	(10 x 1)	**(10)**
1.3	1.3.1	None✓✓		
	1.3.2	B only✓✓		
	1.3.3	B only✓✓	(3 x 2)	**(6)**
1.4	1.4.1	Iodine solution✓		(1)
	1.4.2	– Whether chlorophyll✓ – is required for photosynthesis✓		(2)
	1.4.3	(a) Green✓		(1)
		(b) White ✓		(1)
	1.4.4	**C**✓		(1)
	1.4.5	Photosynthesis has taken place ✓		(1) **(7)**
1.5	1.5.1	Acts as the control✓		(1)

1.5.2 (a) Orange✓ (1)
(b) Purple✓ (1)
(c) Yellow✓ (1)
(d) Orange✓ (1)

1.5.3 Oxygen✓ (1)

1.5.4 **B**✓ (1)
(7)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 2.1.1 A substance used to stimulate the production of antibodies ✓ and provide immunity against one or several diseases ✓ (2)

2.1.2 Novel coronavirus ✓ (1)

2.1.3 That the co-circulation of these two diseases could place an additional burden ✓ on vulnerable populations and healthcare systems ✓ (2)

2.1.4 Health workers ✓
Older people ✓ (2)

2.1.5 The body either will develop active immunity when the virus enters the body ✓ or passive immunity through a vaccine ✓ (2)

2.1.6
- Active immunity is when the virus enters the body and the white blood cells produce antibodies ✓ in response
- These antibodies join onto the virus/antigen and render it inactive ✓
- Antibodies remain in the blood and can neutralise the same pathogen in future infections ✓
- Passive immunity is when a weakened form of the virus is introduced into the body as an injection✓
- and antibodies are produced✓ so that the pathogen can be neutralised in future infections (Any 4) (4)
(13)

2.2 2.2.1 (a) Lacteal✓ (1)
(b) Venule✓ (1)

2.2.2 **A**✓ (1)

2.2.3 **C**✓ (1)

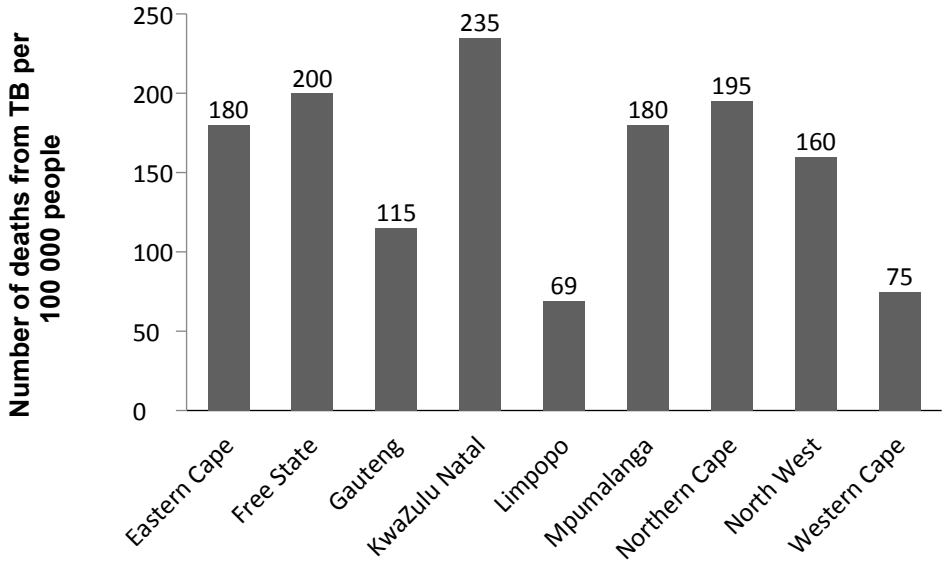
2.2.4
- It has a single layer of cells ✓ so that the nutrients can pass through easily ✓
- It has a capplilary network ✓ to ensure transport of absorbed nutrients
- It is richly supplied with mitochondria ✓to supply energy for the active transport of many nutrients ✓
- Moist membrane ✓to enhance the diffusion of nutrients ✓
- It has microvilli ✓that increases the surface area for absorbtion. ✓ (Any 3 x 2) (6)

(10)

2.3 2.3.1 KwaZulu Natal✓ (1)

2.3.2
- People with HIV are at greater risk of developing TB ✓ because their immune system is compromised
- latent/inactive TB in people becomes active TB ✓
- when they are infected by HIV ✓ (2)

2.3.3 **Bar graph to illustrate the number of deaths due to TB in South Africa reported per 100 000 people in 2005**



Rubric for the assessment of the graph

Criterion		**Mark Allocation**
Correct type of graph	(**T**)	1

Caption for graph	(**C**)	1
Correct label including units for Y-axis	(**L**)	1
Correct scales for y-axis and size of bars and spaces between bars	(**S**)	1
Plotting of points:		
1 to 5 bars correct	(**P**)	1
		OR
All 9 bars correct		2

NOTE:
If the wrong type of graph is drawn: marks will be lost for 'correct type of graph'
If axes are transposed: marks will be lost only for labelling of X-axis and Y-axis (6)
(9)

2.4 2.4.1 (a) Oxygen✓/gas accumulated (1)
(b) Test tube✓ (1)
(c) Funnel✓ (1)

2.4.2 Blue✓ (1)

2.4.3 40 seconds /the shortest time for 20 bubbles to form✓ (1)

2.4.4 (a) Colour of light ✓
(b) Rate of photosynthesis ✓ (2)

2.4.5
- Light intensity✓
- Distance of light from plant✓
- Temperature of water✓
- The *Elodia*✓/water plant

Mark first TWO only **(**Any 2) (2)

2.4.6 The gas released forms bubbles which are easy to see in water ✓ (1)

2.4.7 $\frac{80 + 40 + 160 + 140 + 70}{5}$ ✓ **OR** $\frac{490}{5}$
= 98 seconds✓ **OR** 1 minute 38 seconds ✓ (2)
(12)

2.5 2.5.1 Cheese✓/yoghurt
Mark first ONE only **(**Any 1) (1)

2.5.2
- There is a growing awareness toward health and

wellness ✓
- Many consumers are lactose intolerant ✓
- There is a high level of lactose in traditional dairy products ✓ (2)

Mark first TWO only (Any 2)

2.5.3 Lactose intolerance is the inability to digest lactose, ✓ the sugar in milk and dairy products ✓ (2)

2.5.4 Small intestine ✓ (1)

(6)

[50]

QUESTION 3

3.1 3.1.1 Fungi✓ (1)

3.1.2
- Is a type of respiration that takes place without✓
- the presence of oxygen✓ (2)

3.1.3
- Three solutions were made✓
- One with yeast, one with sugar and one with yeast and sugar✓
- Each solution was placed in a bottle✓
- A balloon was placed over the opening of the bottle✓
- The bottles were labelled **A**, **B** and **C**✓
- The bottles were left for several hours✓ (Any 5) (5)

3.1.4
- Increased the number of bottles used in the investigation✓
- Repeated the investigation✓ (2)

(10)

3.2 3.2.1 A branching diagram/tree showing the evolutionary relationships among various species✓/organisms (1)

3.2.2 (a) Angiosperms✓ (1)
(b) Ferns✓/horsetails (1)

3.2.3 Palaeozoic✓ era (1)

3.2.4 Development of seeds✓ (1)

3.2.5 Bryophytes ✓/mosses
Pteridophytes✓/ferns/horsetails (2)

3.2.6
- Mosses/ferns/both are small plants/a prothallus ✓
- that need to be covered in water✓

- So that the male gametes✓/sperm cells
- can swim to the female reproductive organ /archegonium/ ovum✓
- using their flagella✓
- in order for fertilization to take place✓ (Any 4) (4)

(11)

3.3 3.3.1 Wind✓ (1)

3.3.2
- Large, feathery stigma ✓
- that hangs outside the flower✓
- Stamens are long ✓
- and visible out of the flower✓
- reduced/small flower petals ✓

Mark first TWO only **(**Any 2) (2)

3.3.3
- Both Gymnosperms and grasses are wind pollinated ✓
- Therefore, they need to produce large quantities of pollen ✓
- to ensure that at least some of it will reach the stigmas of other plants ✓for cross pollination
- whereas most Angiosperms are pollinated by insects✓/ birds /bats
- and the pollen is collected from one flower and carried to another flower ✓
- increasing the chance of pollen reaching the stigmas of other flowers ✓ (Any 4) (4)

3.3.4 $\frac{(120 - 90)/30}{120} \times 100$✓

= 25 ✓% (2)

(9)

3.4 3.4.1 300mg/100cm^3✓. (1)

3.4.2 (a) 120 minutes ✓
(b) 210 minutes ✓ (2)

3.4.3
- The results would change ✓
- because the insulin would cause the level of glucose in the blood to decrease rapidly ✓
- And reduce it to a level more like person **A**'s blood glucose levels ✓ (Any 2) (2)

3.4.4
- When the glucose levels increase in the blood ✓ (1)
- the pancreas secretes insulin ✓
- which stimulates the liver cells ✓
- and the muscle cells ✓

- to convert glucose into glycogen ✓
- thus, lowering the levels of glucose in the blood ✓

(Any 4) (4)
(9)

3.5 3.5.1 (a) Ectoderm✓ (1)
(b) Mesoderm✓ (1)
(c) Digestive cavity✓/gut (1)

3.5.2 **1** – Platyhelminthes✓
2 – Annelida✓/Mollusca/Arthropoda/Echinodermata/Chordata (2)

3.5.3
- In diagram **1** there is no coelom✓/body cavity
- Whereas in diagram **2** there is a coelom✓/body cavity (2)

3.5.4
- Provides space for the development of internal organs✓
- Separates the gut wall from the body wall enabling them to work independently of each other✓
- The fluid within the body cavity acts as a hydrostatic skeleton✓/transport medium (2)

3.5.5
- No mixing of food with undigested material✓
- because it moves in one direction. ✓
- It allows digestion to take place✓ continually✓
- The gut is divides into specialized sections✓
- for complete digestion to take place ✓

Mark first ONE only (Any 1 x 2) (2)
(11)
[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150