



**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

NOVEMBER 2022

**LIFE SCIENCES P2
MARKING GUIDELINE**

MARKS: 150

This marking guideline consists of 10 pages.

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 provincial marking guideline 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. Marking guideline 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 appear(s) 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.

- | | | | |
|-------|---|-------------|-----|
| 1.5.3 | A ✓ | | (1) |
| 1.5.4 | 1990 ✓ and 1995 ✓ | | (2) |
| 1.5.5 | 1995 ✓ | | (1) |
| 1.5.6 | Disease ✓
Competition for food ✓/ water/ space | (Any 1 x 1) | (1) |

TOTAL SECTION A: 50

QUESTION 2

- 2.1 2.1.1 Spermatophytes ✓ / Angiosperms (1)
- 2.1.2 (a) Anther ✓
(b) Corolla ✓
(c) Stigma ✓ (3)
- 2.1.3 B, C, F,G (1–3 correct) ✓ (All 4 correct) ✓✓ (2)
- 2.1.4 1 ✓ (1)
- 2.1.5 Their stigmas are large ✓/feathery
The stamens are long ✓/protrude out of the flower
Anthers are large ✓ to produce lots of pollen (Any 2 x 1) (2)
- 2.1.6 Fruit ✓
Flowers ✓ (2)
- 2.2 2.2.1 Myobacterium ✓ (1)
- 2.2.2 It does not have a (membrane bound) nucleus. ✓ (1)
- 2.2.3 (a) slime capsule ✓
(b) flagella ✓
(c) nucleoid / DNA ✓ (3)
- 2.2.4 A person is given a weak strain of the bacteria ✓
the body will produce antibodies to fight the infection ✓
The antibodies will protect them against a new/stronger infection of the same germ ✓ (3)
- 2.2.5
- | Virus | Bacteria |
|----------------|----------------------|
| Non-living ✓ | Living ✓ |
| Acellular ✓ | Prokaryotic ✓ |
| Protein coat ✓ | Cell wall/membrane ✓ |
- Table ✓ + (Any 1 x 2) (3)
- 2.2.6 HIV lowers the body's immunity ✓ /white blood cell count therefore it cannot defend the body against TB ✓ (2)
- 2.3 2.3.1 Fungi grow best in dark ✓ and warm places ✓ (2)
- 2.3.2 Treatment ✓ on bread (1)
- 2.3.3 It is the control ✓ (1)
- 2.3.4 Repeat the investigation ✓ / increase the sample size (1)
- 2.3.5 Sugar provides energy ✓/food for fungi therefore more food will allow fungi to grow faster ✓ (2)

- 2.3.6 Use spray bottle to apply treatments evenly ✓
 Place bread in zip lock bags ✓
 All slices placed in cupboard ✓
 All left for one week ✓ /same time
 Same sizes slices of bread ✓
 Same quantity (200 ml) of treatment (Any 2 x 1) (2)
- 2.4 2.4.1 Animalia ✓ (1)
- 2.4.2 Cnideria ✓ (1)
- 2.4.3 Bilateral ✓ (1)
- 2.4.4 (a) Ectoderm ✓
 (b) Endoderm ✓ (2)
- 2.4.5 Earthworms tunnel through the soil ✓ which aerates the soil ✓ /
 allows water to infiltrate
 They eat decomposed dead organic material ✓
 The faeces of earthworms are rich in nutrients for plants and enrich
 the soil ✓ (4)
- 2.4.6 Cnideria:
 - They are **sedentary/sessile animals** ✓ therefore **radially symmetry** allows them to **obtain food and ward off danger coming from any directions** ✓
 - They have **nerves located over the entire body** surface ✓/ there is no cephalization. This allows them to **sense equally all around.** ✓
 - The jelly like **mesoglea** ✓ **has a network of nerves** that enables coordinated movement. ✓ (Max. 2 x 2)
- Annelids:
 - They are **very active and move into new environments** ✓ with new dangers frequently.
 Therefore, they **show cephalization** ✓/ need sense organs accumulated in the area that enters the new environment first
 - Since free-living species **move actively** from place to place they **need muscles** ✓
 they have **developed a mesoderm** ✓ from which muscle originate / They are **triploblastic**.
 - For muscle to work effectively, the body wall of these organisms needs to work independently from gut walls. ✓ The **development of a coelom** ✓ separated the body wall from the gut wall.
 (Max. 2 x 2) (8)

[50]

- 3.3 3.3.1 A group of organisms of the same species, occupying the same habitat at the same time, and capable of random breeding. ✓✓ (2)
- 3.3.2 4% ✓ (1)
- 3.3.3 5–9 years old ✓ (1)
- 3.3.4 Females ✓ (1)
- 3.3.5 Nigeria ✓ (1)
- 3.3.6 - High birth-rate ✓ / High number of younger people in population
- High death rate ✓ / Less older people in population / Short life expectancy (2)
- 3.3.7 - Disease ✓
- Lack of food ✓
- Lack of water ✓
- Lack of space ✓ (Any 1 x 1) (1)
- 3.3.8 **Explanation must be for answer given in QUESTION 3.3.7**
Disease – humans have developed medical technology ✓ so there are fewer deaths ✓
Lack of food – mass produce crops ✓ / monoculture / GM foods to increase crop production ✓
Lack of water – building of dams ✓ to store water for when needed ✓
Lack of space – building high rise apartment building and skyscrapers ✓ / creating cities and towns so that people can live in a smaller area of space ✓ (Any 1 x 2) (2)
- 3.4 3.4.1 Mercury ✓
Asbestos ✓
Brine ✓
Fly ash ✓
Waste oils ✓
Sewage ✓ (Any 2 x 1) (2)
- 3.4.2 Methane ✓ (1)
- 3.4.3 $\frac{10}{100} \times 54\,200\,000 = 5\,420\,000$ ✓ tons / 5,42 million tons (3)
- 3.4.4 - Disease carrying animals are attracted to the area by dumpsites ✓
- Dumpsites release dust and unpleasant smells ✓
- Decomposition of pollutants release toxic substances ✓
- Release of methane gas could cause explosions ✓ (Any 2 x 1) (2)

- 3.4.5 - Dig a hole where solid waste is dumped ✓ and then cover it with soil. ✓
- To prevent the toxic leachate ✓ from reaching the groundwater, a plastic liner ✓ is placed under the dumpsite area.
- Covering of the old landfill site with clay soil, ✓ and then it is covered with topsoil. ✓ (Any 2 x 1) (2)
- 3.4.6 - **Re-using** ✓ waste products include re-using plastic shopping bags, re-using glass and plastic containers – this helps to reduce the waste produced. ✓
- **Recycling** ✓ waste provides employment, reduces the use of raw materials and energy pollution. ✓
- **Reducing waste** ✓ by charging people extra if they generate more waste ✓
- **Fines** for people that do not separate the waste into different bins ✓ To encourage citizens to manage waste more efficiently ✓
- **Partnership** with recycling companies ✓ for improved collection of different wastes ✓
- **Educate** people to use organic waste ✓ for example to make compost ✓ (Any 2 x 2) (4)

[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150