Province of the
EASTERN CAPE
EDUCATION

# NATIONAL SENIOR CERTIFICATE

## GRADE 11

## NOVEMBER 2020

# LIFE SCIENCES P2
# MARKING GUIDELINE
# (EXEMPLAR)

**MARKS:** **150**

This marking guideline consists of 12 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 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. 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.

## SECTION A

## QUESTION 1

| | | | | |
|---|---|---|---|---|
| 1.1 | 1.1.1 | B ✓✓ | | |
| | 1.1.2 | B ✓✓ | | |
| | 1.1.3 | C ✓✓ | | |
| | 1.1.4 | A ✓✓ | | |
| | 1.1.5 | D ✓✓ | | |
| | 1.1.6 | B ✓✓ | | |
| | 1.1.7 | C ✓✓ | | |
| | 1.1.8 | C ✓✓ | | |
| | 1.1.9 | C ✓✓ | 9 x 2 | (18) |
| 1.2 | 1.2.1 | mutualism ✓ | | |
| | 1.2.2 | yeast ✓ | | |
| | 1.2.3 | phylogenetic tree ✓/ cladogram | | |
| | 1.2.4 | cones ✓ | | |
| | 1.2.5 | eutrophication ✓ | | |
| | 1.2.6 | biodiversity ✓ | | |
| | 1.2.7 | competitive exclusion ✓ | | |
| | 1.2.8 | methane ✓ | 8 x 1 | (8) |
| 1.3 | 1.3.1 | none ✓✓ | | |
| | 1.3.2 | A only ✓✓ | | |
| | 1.3.3 | B only ✓✓ | 3 x 2 | (6) |
| 1.4 | 1.4.1 | Plantae ✓ | | (1) |
| | 1.4.2 | Bryophytes ✓ | | (1) |

1.4.3 B ✓
D ✓ **(Mark first TWO only)** (2)

1.4.4 Diagram 3 ✓✓ **(Mark first ONE only)** (2)

1.4.5 Diagram 3 ✓✓ **(Mark first ONE only)** (2)

1.5 1.5.1 (a) exponential growth ✓/accelerating/geometric/logarithmic (1)

(b) decelerating phase ✓ (1)

(c) death phase ✓/ extinction phase (1)

1.5.2 Logistic growth ✓ form (1)

1.5.3 Graph 2 ✓ (1)

1.5.4 (a) D ✓ (1)

(b) B ✓ (1)

1.5.5 Environmental resistance ✓ (1)

1.5.6 Population must adapt to their new environment ✓
The population is small ✓
Organisms need to become sexually mature ✓
Organisms need to find mates ✓ (Any 2) (2)

**TOTAL SECTION A: 50**

## QUESTION 2

2.1 2.1.1 A – Protein coat ✓
B – RNA ✓ (2)

2.1.2 Antibiotics are used to kill living organisms ✓
Viruses are not living ✓ (2)

2.1.3 A person is given a weak strain of the germ ✓
the body will produce antibodies to fight the infection ✓
The antibodies will protect them against a new / stronger infection of the same germ ✓ (3)

2.1.4 The vaccine would need to go through trial ✓
to ensure it has no negative effects ✓ (2)

2.2 2.2.1 Plasmodium ✓ (1)

2.2.2 mosquito ✓/ anopheles (1)

2.2.3 headache ✓
fever ✓
sweating ✓
chills ✓
muscular pain ✓
abdominal pain ✓
diarrhoea ✓
nausea and vomiting ✓
loss of appetite ✓
cough ✓
**(Mark first TWO only)** (Any 2) (2)

2.2.4 Prevent getting bitten by mosquitoes ✓/ (or any example)
Get rid of mosquitoes ✓/(or any example) (2)

2.3 2.3.1 Plantae ✓ (1)

2.3.2 U – corolla ✓
V – calyx ✓ (2)

2.3.3 (a) R ✓ ovary ✓ (2)

(b) S ✓ anther ✓ (2)

2.3.4 Insects ✓ (or example of an insect)/ wind / self-pollinated (1)

2.3.5 (a) Produces large amounts of food ✓/ easier farming as same treatment is given to whole crop (1)

(b) A pest population will increase rapidly and destroy the entire crop ✓ / increase in amount of pesticides used (1)

2.3.6
- Crops could be wiped out/attacked by disease if they are all of the same variety. ✓
- Seed banks may store variations of crops that may be hardier to the disease and can replace those wiped out. ✓
- A seed bank stores unusual or rare varieties that are not commercially farmed ✓ to maintain biodiversity ✓
- A seed bank keeps cultures of plants that are not usually grown from seed ✓ in case they are needed to replace plants that go extinct in the wild ✓
- Endemic species need to be preserved ✓ as they do not occur elsewhere in the world ✓
- Endangered species may be preserved ✓ In case they go extinct in the wild ✓
- Species may have the potential to provide us with substances of medicinal value ✓
- They must be preserved so that they can be studied before they go extinct. ✓

**(Mark first TWO only)** (Any 2 x 2) (4)

2.3.7 asexual ✓ (1)

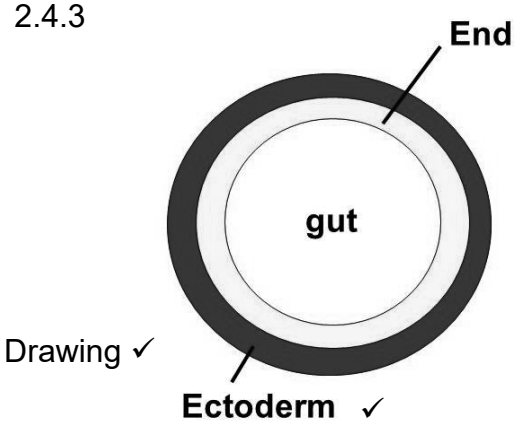
2.3.8
- Crop grows faster than from a seed ✓ therefore can produce potatoes in shorter time ✓
- Do not have to wait to see if seed germinates ✓ as potato tubers are already germinating ✓

**(Mark first ONE only)** *(*Any 1 x 2) (2)

2.4 2.4.1 Cnidaria ✓ (1)

2.4.2 radial ✓ (1)

2.4.3




**Mark allocation:**

Heading ✓

Correct drawing✓

Labels ✓✓

**Body Plan of Cnidaria showing tissue layers** ✓ (4)

2.4.4 They are radially symmetrical, ✓ therefore they can sense food/ danger equally well in all directions ✓ (2)

2.5 2.5.1 Yes ✓ (1)

2.5.2 It has a brain ✓ (1)

2.5.3 The body wall can work independently ✓ from the gut wall ✓ (2)

2.5.4 Due to separation of body wall and gut wall ✓/coelom diffusion is inadequate for transportation of food ✓/ waste / gases (2)

2.5.5
- They eat decomposed/dead organic (plant) material. ✓/ Faeces of earthworms are rich in nutrients for plants and enrich the soil ✓
- They aerate the soil ✓/create underground tunnels This helps to infiltrate the soil with water ✓ and helps the plants to grow their roots deeper (4)

**[50]**

## QUESTION 3

3.1 3.1.1 They can capture prey too fast for them ✓
and they can tackle prey too large for them ✓ (2)

3.1.2 predation ✓/ predator-prey (1)

3.1.3 A ✓ (1)

3.1.4
- Graph **A** increases / decreases after graph **B** ✓
- There are fewer individuals in **A** than **B** ✓
- There is less fluctuation in numbers in **A** than in **B**

(Any 2) (2)

3.1.5 Drought ✓
Flood ✓
(Any relevant factor but NOT tsunami / earthquake / hurricane)
**(Mark first ONE only)** (1)

3.1.6 Large numbers mean that an individual is less likely to be caught by a predator ✓/ prey have a better opportunity to escape.
As there are many eyes to spot the predator early ✓/ as running in herds may reduce the ability of a predator to focus on one individual to attack (2)

3.1.7 If the prey numbers increase the predator numbers will increase ✓
Causing the prey numbers to decrease ✓ which will cause the predator numbers to decrease ✓

**OR**

The predator and prey numbers depend on each other ✓
This helps to control the population size in each group ✓
If one increases, the other one will cause it to decrease again ✓ (3)

3.2 3.2.1 (a) The increase in the average temperature on earth ✓ (1)

(b) The access to enough ✓ nutritious ✓ food, at all times, ✓ by all people ✓ (Any 3) (3)

3.2.2 carbon dioxide ✓ (1)

3.2.3
- Changes in rainfall patterns ✓ cause
- desertification ✓/ increased flooding ✓/ wildfires ✓
- which increase soil erosion ✓ resulting in
- fewer crops to be planted ✓/ lower crop yield ✓
- there will be less food for livestock ✓
- Higher environmental temperatures negatively affect livestock ✓/ crops
- These factors decrease food availability ✓/ increase food prices

(Any 5) (5)

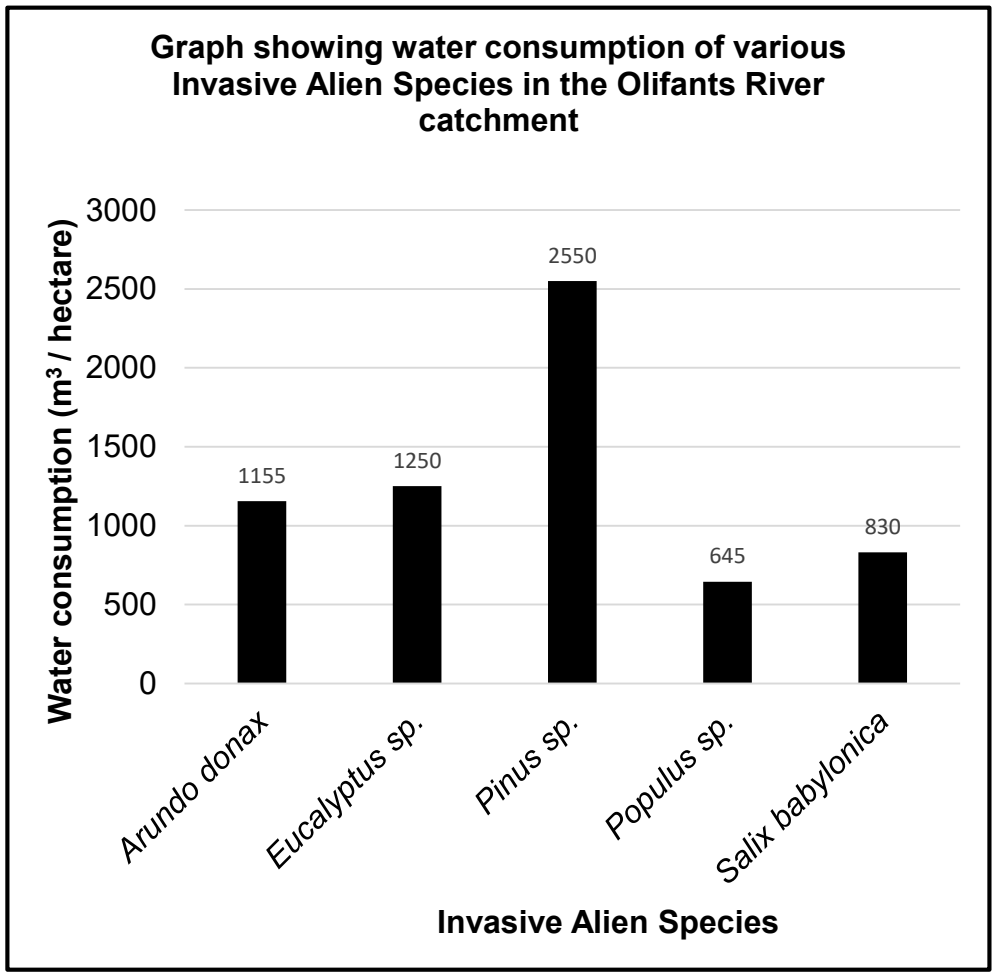
3.3 3.3.1 (a) Invasive alien species ✓ (1)

(b) Water consumption ✓
Area invaded by plants ✓ (2)

3.3.2 Quadrat ✓/ simple sampling (1)

3.3.3 (2550 $m^3$/ hectare x 752 hectares) ✓ = 1 917 600 ✓ $m^3$ ✓ (3)

3.3.4



**Marking guideline:**

| | |
|---|---|
| Caption (C)<br>Both variables included | 1 Mark |
| Type of graph (T) | 1 Mark |
| X-axis label, bars of equal width (X) | 1 Mark |
| Y-axis label and scale (Y) | 1 Mark |
| Plotting of points (P) | 0 Mark – No points plotted correctly |
| | 1 Mark – 1 to 6 points plotted correctly |
| | 2 Marks – all points plotted correctly |

(6)

3.3.5 Biological control ✓/ example
Chemical control ✓/ example
Mechanical control ✓/example (3)

3.3.6 Do not plant exotic plants in your garden ✓
Remove exotic plants from your garden ✓
Form a hacking club to chop down alien trees ✓
**(Mark first ONE only)** (Any 1) (1)

3.4 3.4.1 The total count of all the individuals in a population ✓ (1)

3.4.2 Females ✓ (1)

3.4.3 (a) 1990 ✓ (1)

(b) 1990 ✓ (1)

3.4.4
- There is a **decrease in birth rate** ✓ due to better education ✓/ access to birth control / improved lifestyle with fewer children / better employment opportunities for women
- There is an **increase in life expectancy** ✓ due to better health care available ✓

**(Mark first TWO only)** (Any 2 x 2) (4)

3.4.5 Useful for planning:
- health care ✓
- social welfare ✓
- education ✓
- creating employment ✓
- provision of resources ✓
- housing needs ✓

**(Mark first THREE only)** *(*Any 3) (3)

**[50]**

**TOTAL SECTION B: 100**

**GRAND TOTAL: 150**