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Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2025

LIFE SCIENCES P2
MARKING GUIDELINE

MARKS: 150

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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 are 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 memo discussion meeting.

14. **If only the letter is asked for but only the name is given (and vice versa)**
    Do not credit.

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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.

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SECTION A

QUESTION 1

1.1	1.1.1	B ✓✓		
	1.1.2	C ✓✓		
	1.1.3	C ✓✓		
	1.1.4	A ✓✓		
	1.1.5	C ✓✓		
	1.1.6	D ✓✓		
	1.1.7	C ✓✓		
	1.1.8	D ✓✓		
	1.1.9	C ✓✓	(9 x 2)	(18)
1.2	1.2.1	Age-gender pyramid ✓		
	1.2.2	Seed ✓		
	1.2.3	Ecology ✓		
	1.2.4	Phagocytosis ✓		
	1.2.5	Emigration ✓		
	1.2.6	Stamen ✓		
	1.2.7	Biological ✓ control		
	1.2.8	Life expectancy ✓	(8 x 1)	(8)
1.3	1.3.1	Both A and B ✓✓		
	1.3.2	A only ✓✓		
	1.3.3	A only ✓✓	(3 x 2)	(6)
1.4	1.4.1	Bacteria ✓/E.coli		(1)
	1.4.2	(a) Flagellum ✓/tail		(1)
		(b) Protein spikes ✓		(1)
	1.4.3	(a) (Diagram) 2 ✓		(1)
		(b) (Diagram) 1 ✓		(1)
	1.4.4	A ✓ E ✓		(2)
	1.4.5	(a) Plasmid ✓		(1)
		(b) Bacteriophage ✓		(1)
1.5	1.5.1	Radiant ✓ energy		(1)
	1.5.2	Reflected/bounces back into space ✓		(1)
	1.5.3	- Carbon dioxide ✓/CO_2 - Methane ✓/CH_4 - Nitrous oxide ✓/N_2O **(Mark first TWO only)**		(2)

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1.5.4 (a) Global warming ✓ (1)

(b) Deforestation ✓ (1)

(c) Climate change ✓ (1)

(d) Carbon footprint ✓ (1)

1.5.5 Burning of fossil fuels ✓/coal /oil/ natural gases (1)

TOTAL SECTION A: 50

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QUESTION 2

2.1 2.1.1 Angiosperms ✓/flowering plants (1)

2.1.2
- They produce flowers ✓
- Seeds enclosed in a fruit ✓ (2)

2.1.3 (a) Pollen ✓ (1)

(b) Stigma ✓ (1)

(c) Nectar ✓ (1)

2.1.4
- To allow for self-pollination ✓ to occur
- Since pollen will land on the stigma ✓
- In order for fertilisation ✓ to take place (3)

2.1.5 Insects ✓ (1)

2.1.6
- It transfers pollen from male reproductive parts to the female reproductive parts ✓
  Allows plants to reproduce ✓
- Cross pollination creates genetic diversity ✓/variation in plants
- Producing offspring that are resilient ✓/can withstand changes in the environment

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

2.2 2.2.1 (a) Rhizome ✓ (1)

(b) Fronds ✓ (1)

2.2.2 Sori ✓/sorus (1)

T ✓*

2.2.3

PTERIDOPHYTES	BRYOPHYTES
Bigger/larger (plant sizes) ✓	Smaller (plant sizes) ✓

1* compulsory + 2 (3)

2.2.4
- Xylem ✓
- Phloem ✓ (2)

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2.3 2.3.1 (a) Chordata ✓ (1)

(b)
- Lancelets ✓
- Tunicates ✓
- Ancestor ✓

(Mark first TWO only) (2)

2.3.2
- Decomposition ✓ of dead organisms leads to the
- formation of humus ✓that
- improves soil texture ✓/increases the water retention capacity of the soil/increases soil fertility/recycles nutrients back in the soil

OR

- Burrowing into the soil leads to better aeration ✓of the soil which
- increases the oxygen supply to the root cells ✓
- promoting better root growth ✓/preventing rotting of the root system/better absorption of nutrients and water (3)

2.3.3 (a) (Presence of an) Amnion ✓ (1)

(b) Mammals ✓ (1)

2.4 2.4.1 (a) Open blood ✓system (1)

(b) Capillaries ✓ (1)

2.4.2
- Nutrients ✓
- Oxygen ✓ (2)

2.4.3
- Organism **A** has bilateral ✓symmetry
- Can be cut through the centre once ✓
- to produce two equal ✓/identical halves (Any 2) (2)

2.4.4 (a) Coelom ✓ (1)

(b) Haemocoel ✓ (1)

2.4.5
- Allows the various body parts to be specialised ✓/perform different functions
- Allows for independent movements ✓ of sections of the body
- Allows for growth ✓

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

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2.5 2.5.1 It increases ✓ (1)

2.5.2 (a) 90 ✓ arbitrary units (1)

(b) Artificial ✓/acquired immunity (1)

(c) White blood ✓ cells/lymphocytes (1)

2.5.3 - To increase ✓
- the reliability ✓ of the results (2)

2.5.4 A suspension/weakened/dead form of the pathogen ✓ /virus/ bacteria/antigen (1)

2.5.5 - Antibody levels are higher ✓ for the third dose
- indicating a stronger immune response ✓
- which prevents Covid-19 infection ✓ (3)

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QUESTION 3

3.1 3.1.1
- Organisms of the same species ✓
- Occupying the same habitat ✓
- At the same time ✓/able to interbreed (3)

3.1.2 As the period (in years) increases the population size decreases ✓✓ (2)

3.1.3 $\frac{610\ 000-505\ 000}{505\ 000}$ ✓x 100 ✓ = 20,79% ✓ (3)

3.1.4
- A decrease in the economy/GDP
  (Fewer/less taxes collected) due to a decrease in labour force ✓/ workers
- Reduction of skills ✓/variety/innovation
  Due to fewer younger individuals ✓
- Pressure on health facilities ✓
  Due to an increase in an aging population, ✓ thus require medical care
- Increased need for social programs ✓
  (With an aging population), which will put a strain on limited financial resources ✓due to fewer workers

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

3.1.5
- Immigration ✓
- High birth rate ✓

(Mark first ONE only) (1)

3.2 3.2.1
- Dry ice ✓
- Sodium chloride ✓ (2)

3.2.2 Dam ✓ (1)

3.2.3
- Water availability will increase ✓
- Leading to constant supply of water for irrigation ✓ (2)

3.2.4
- Research alternative methods ✓/e.g. desalinate seawater
- Fix/maintain all waterworks ✓/pipe systems
- Locate aquifers ✓/boreholes/underground water
- Remove alien plants ✓ in the catchment area of the dam
- Recycle grey water ✓

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

3.3 3.3.1 (a) Concentration of microplastics ✓ (1)

(b) Rate of photosynthesis ✓ (1)

3.3.2
- Dissolved oxygen production ✓
- Chlorophyll fluorescence ✓
- Carbon dioxide uptake ✓ (3)

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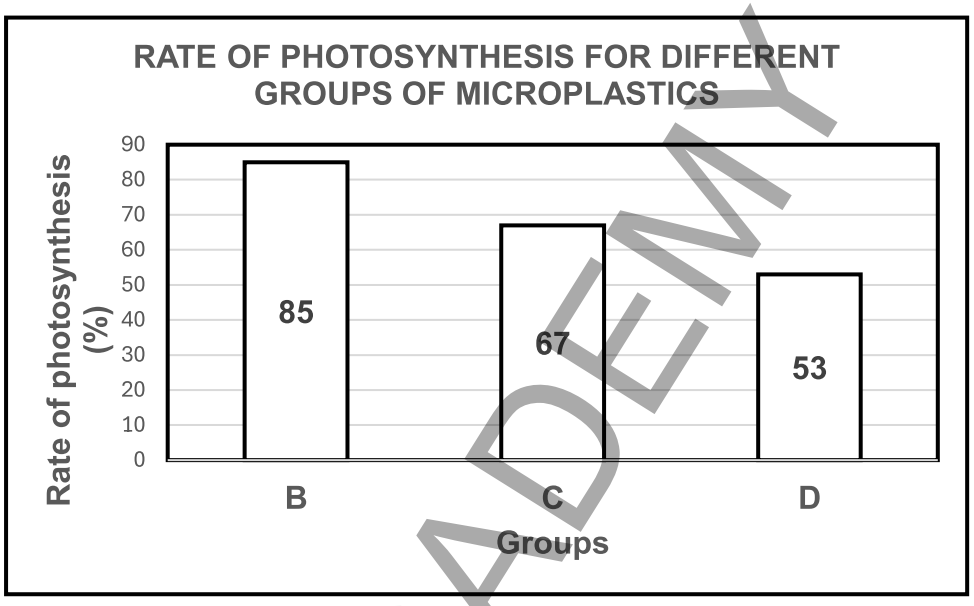
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3.3.3 (a)
- It served as a control ✓
- to compare whether the concentration of microplastics had any effect on the rate of photosynthesis ✓ or not (2)

(b)
- To ensure that other factors affecting the rate of photosynthesis are kept constant ✓/only the concentration of microplastics should have an effect on the rate of photosynthesis
- to ensure the validity ✓of the investigation (2)

3.3.4



Rate of photosynthesis for different groups/concentrations of microplastics

CRITERIA	ELABORATION	MARK
Type of graph **(T)**	Bar graph drawn	1
Caption of graph **(C)**	Both variables included	1
Axes labels **(L)**	X- and Y-axis correctly labelled with units	1
Scale for X- and Y-axis **(S)**	- Equal space and width of bars for X-axis and - Correct scale for Y-axis	1
Plotting of co-ordinates **(P)**	- 1 to 2 co-ordinates plotted correctly - All 3 required co-ordinates plotted correctly. - All 4 co-ordinates plotted correctly	1 1 2

Histogram or line graph drawn
- Lose marks for type of graph

Transposed axes
- Can get full credit, if axes labels are also swapped and bars are horizontal
- If labels are not corresponding, then lose marks for labels and scale
- Check that the plotting is correct for the given labels (6)

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3.3.5 - Food security will decrease ✓
due to reduction/decrease in the rate of photosynthesis ✓ (2)

3.4 3.4.1 - Mutualism ✓
- Both organisms benefit from the relationship ✓/clownfish gets shelter while sea anemone tentacles are cleaned (2)

3.4.2 - Commensalism ✓
- Parasitism ✓ (2)

3.4.3 (a) Powerful venom ✓ (1)

(b) (Special) mucus layer on their skin ✓ (1)

(c) Central single digestive opening ✓ (1)

3.4.4 - An increase in the population size of clownfish ✓ will cause
- clownfish to compete amongst themselves ✓
- for limited resources ✓/sea anemone/shelter
- less breeding ✓ occurs among clownfish which are the weaker competitors
- clownfish die ✓ due to predation/environmental resistance
- population growth rate decreases ✓/logistic growth form occurs (5)

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TOTAL SECTION B: 100
GRAND TOTAL: 150

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