



KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

**PROVINCIAL STANDARDISED
ASSESSMENT**

GRADE 10

LIFE SCIENCES
SEPTEMBER 2026

Stanmorephysics.com

MARKS: 75

TIME: 1½ Hours

NB: This question paper consists of 13 pages.



INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer ALL the questions.
2. Write ALL the answers in the ANSWER BOOK.
3. Start the answers to each question at the top of a NEW page.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Present your answers according to the instructions of each question.
6. Do ALL drawings in pencil and label them in blue or black ink.
7. Draw diagrams, tables or flow charts only when asked to do so.
8. The diagrams in this question paper are NOT necessarily drawn to scale.
9. Do NOT use graph paper.
10. You may use a non-programmable calculator, protractor and a compass.
11. Write neatly and legibly.



SECTION A**QUESTION 1**

- 1.1 Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A to D) next to the question number (1.1.1 to 1.1.5) in your ANSWER BOOK, for example 1.1.6 D.

1.1.1 The variety of living organisms on Earth is called...

- A biodiversity.
- B biogeography.
- C classification.
- D axonomy.

1.1.2 Which of the following is the correct order of classification from largest to smallest?

- A Kingdom → Genus → Family → Order → Class → Phylum → Species
- B Kingdom → Phylum → Class → Order → Family → Genus → Species
- C Kingdom → Class → Phylum → Family → Order → Genus → Species
- D Kingdom → Order → Class → Phylum → Family → Species → Genus

1.1.3 Which of the following statements is the reason for use of scientific names rather than common names?

- A Scientific names are shorter and very simple to understand
- B Scientific names are the same worldwide and avoid confusion
- C Scientific names are easier for scientists to pronounce
- D Scientific names change every year and confuse scientists

1.1.4 During Cambrian explosion...

- A dinosaurs became extinct.
- B first flowering plants appeared on earth.
- C marine organism became extinct.
- D many new groups of organisms appeared over a short space of time.

1.1.5 Which of the following processes releases carbon dioxide back into the atmosphere?

- A Photosynthesis
- B Respiration
- C Nitrogen fixation
- D Transpiration

2x5

(10)

1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question number (1.2.1 to 1.2.5) in your ANSWER BOOK.

1.2.1 Process in which water vapour cools and changes into tiny liquid water droplets

1.2.2 The part of the Earth and its atmosphere where living organisms are found

1.2.3 Units in nature in which living and non-living things interact with each other

1.2.4 Species that are indigenous and are found only in one specific area and nowhere else in the world

1.2.5 The layer of gases surrounding the Earth

(5)

1.3 Indicate whether each of the statements in COLUMN I applies to **A ONLY**, **B ONLY**, **BOTH A AND B** or **NONE** of the items in COLUMN II. Write **A only**, **B only**, **both A and B**, or **none** next to the question number (1.3.1 to 1.3.2) in the ANSWER BOOK.

COLUMN I		COLUMN II	
1.3.1	Developed the binomial system	A:	Carolus Linnaeus
		B:	Robert Whittaker
1.3.2	The study of fossils	A:	Ecology
		B:	Palaeontology

2x2

(4)

1.4 The diagram below shows some evolutionary trends in the history of life.

EON	ERA	PERIOD (Approx. Time Ago)
Phanerozoic (Visible Life)	Cenozoic (Age of Mammals)	Quaternary (2.6 million years ago – Present)
		Tertiary (66 – 2.6 million years ago)
	Mesozoic (Age of Reptiles)	Cretaceous (145 – 66 million years ago)
		Jurassic (201 – 145 million years ago)
		Triassic (252 – 201 million years ago)
	Paleozoic (Age of Amphibians)	Permian (299 – 252 million years ago)
		Carboniferous (359 – 299 million years ago)
		Devonian (419 – 359 million years ago)
		Silurian (444 – 419 million years ago)
		Ordovician (488 – 444 million years ago)
		Cambrian (541 – 488 million years ago)
Proterozoic (Early Life)	2.5 billion – 541 million years ago	
Archaean (First Life)	4.6 billion – 2.5 billion years ago	

1.4.1 Identify the above diagram. (1)

1.4.2 Give TWO Eras that make up the Phanerozoic Eon. (2)

1.4.3 Name the oldest period of the Paleozoic era. (1)

1.4.4 Which period comes immediately after Jurassic period? (1)

1.4.5 Approximately how many million years ago did the Cretaceous periods begin? (1)

(6)

TOTAL SECTION A

25

SECTION B**QUESTION 2**

2.1 Read the extract below.

MASS EXTINCTION

A mass extinction is an event in which a very large number of plant and animal species become extinct over a relatively short period of geological time. Scientists have identified five major mass extinctions in Earth's history. The largest was the Permian-Triassic extinction, about 252 million years ago, when nearly 96% of marine species and 70% of land vertebrates disappeared.

The most well-known mass extinction occurred about 66 million years ago, when a large asteroid struck Earth near present-day Mexico. This event caused the extinction of the non-avian dinosaurs, along with many other organisms. Dust and gases released into the atmosphere blocked sunlight, lowering temperatures and reducing photosynthesis. As plants died, herbivores lost their food source, followed by carnivores.

Today, many scientists believe that Earth may be experiencing a sixth mass extinction. Unlike previous mass extinctions caused mainly by natural events, this one is largely driven by human activities, including habitat destruction, pollution, climate change, overfishing, and the introduction of invasive species. Protecting ecosystems and reducing environmental damage can help slow the loss of biodiversity.

2.1.1 State:

- (a) Approximately how many million years ago did the Permian-Triassic extinction occur? (1)
- (b) TWO characteristics of a mass extinction. (2)

2.1.2 Name the event that caused the extinction of the non-avian dinosaurs. (1)

2.1.3 From the extract, give TWO human activities that are contributing to the possible sixth mass extinction. (2)

2.1.4 Describe how the asteroid impact affected food chains. (2)

2.1.5 Explain why photosynthesis decreased after the asteroid impact. (2)

(10)

2.2 The table below shows some of the South African terrestrial biomes with their average rainfall per year and dominant vegetation type.

Biome	Average rainfall(mm per year)	Dominant vegetation
Savanna	450-900	Grasses with scattered trees
Desert	Less than 200	Succulents and shrubs
Grassland	400-900	Grasses
Forest	More than 700	Tall evergreen trees

2.2.1 Identify the biome which receives the lowest annual rainfall. (1)

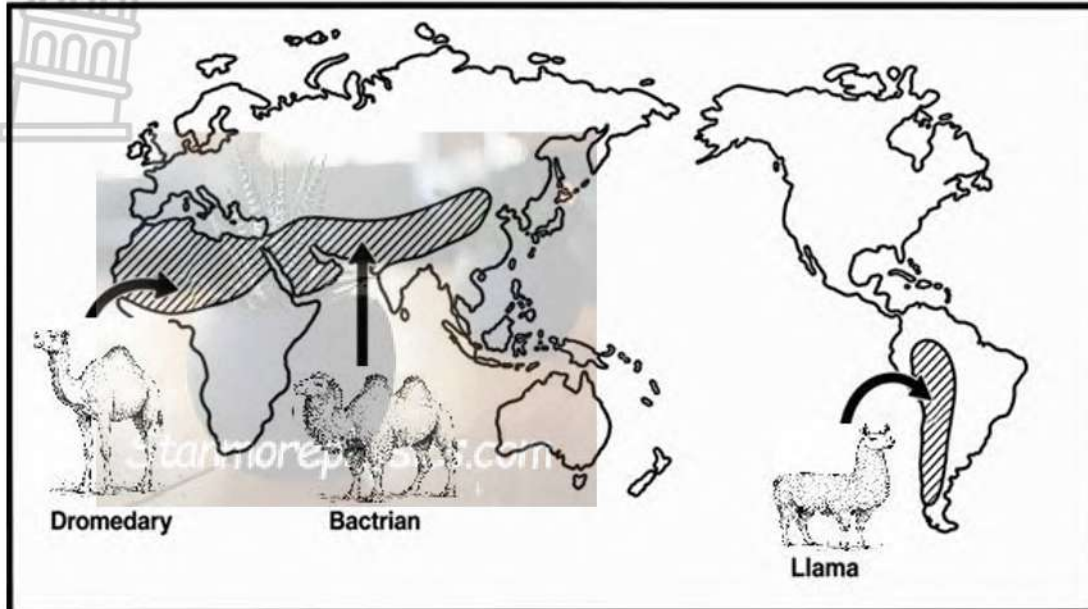
2.2.2 Name the dominant vegetation found in the grassland biome. (1)

2.2.3 State TWO ways in which human activities threaten South African terrestrial biomes. (2)

2.2.4 Explain why forests are able to support tall evergreen trees. (2)

(6)

- 2.3 The diagram below shows a distribution of members of a camel family on different continents. The arrows indicate the current distribution of different species.



- 2.3.1 Name the term given to a study of the past and present distribution of species. (1)
- 2.3.2 Give the name of the supercontinent that all these continents were once part of. (1)
- 2.3.3 Describe how continental drift may have resulted in the current distribution of camel species. (4)
- 2.3.4 Explain why the presence of related animals on different continents supports the theory of continental drift. (3)

(9)

TOTAL QUESTION 2 25

QUESTION 3

3.1 Grade 10 learners conducted an investigation to determine two properties of different soil types: the air content and pH.

The procedure was as follows:

- TWO soil samples of 200g each were taken from the garden
- The samples were labelled as sample **A** and sample **B**
- The air content and pH of both soil samples was measured by the same learner using a porosity meter and litmus paper

The results were as follows:

Sample **A** had an air content of 35% and a pH of 5.5 - 6.5

Sample **B** had an air content of 25% and a pH of 6.0 - 7.0

3.1.1 Give TWO planning steps for the above investigation. (2)

3.1.2 State ONE:

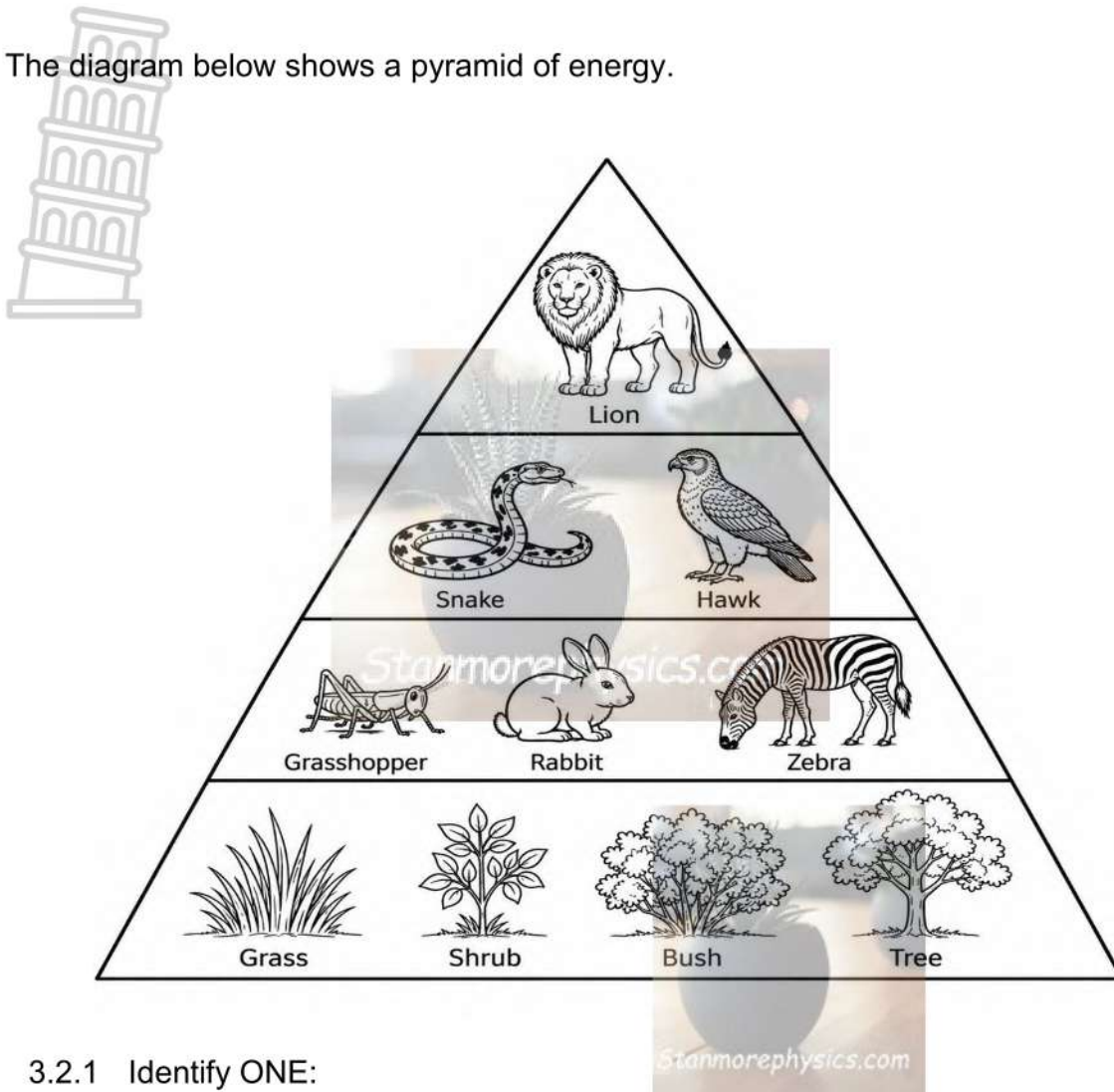
3.1.3 (a) Way in which the reliability could be improved in this investigation. (1)

(b) Way in which the learners ensured the validity of their investigation. (1)

3.1.4 Draw the table to show the results of the investigation. (4)

3.1.5 Which sample would be more suitable for plant growth? (1)
(9)

3.2 The diagram below shows a pyramid of energy.



3.2.1 Identify ONE:

- (a) Tertiary consumer (1)
- (b) Herbivore (1)
- (c) Organism in the first trophic level (1)

3.2.2 Arrange the following organisms into a food chain:

Snake, Grass, Lion and Grasshopper. (2)

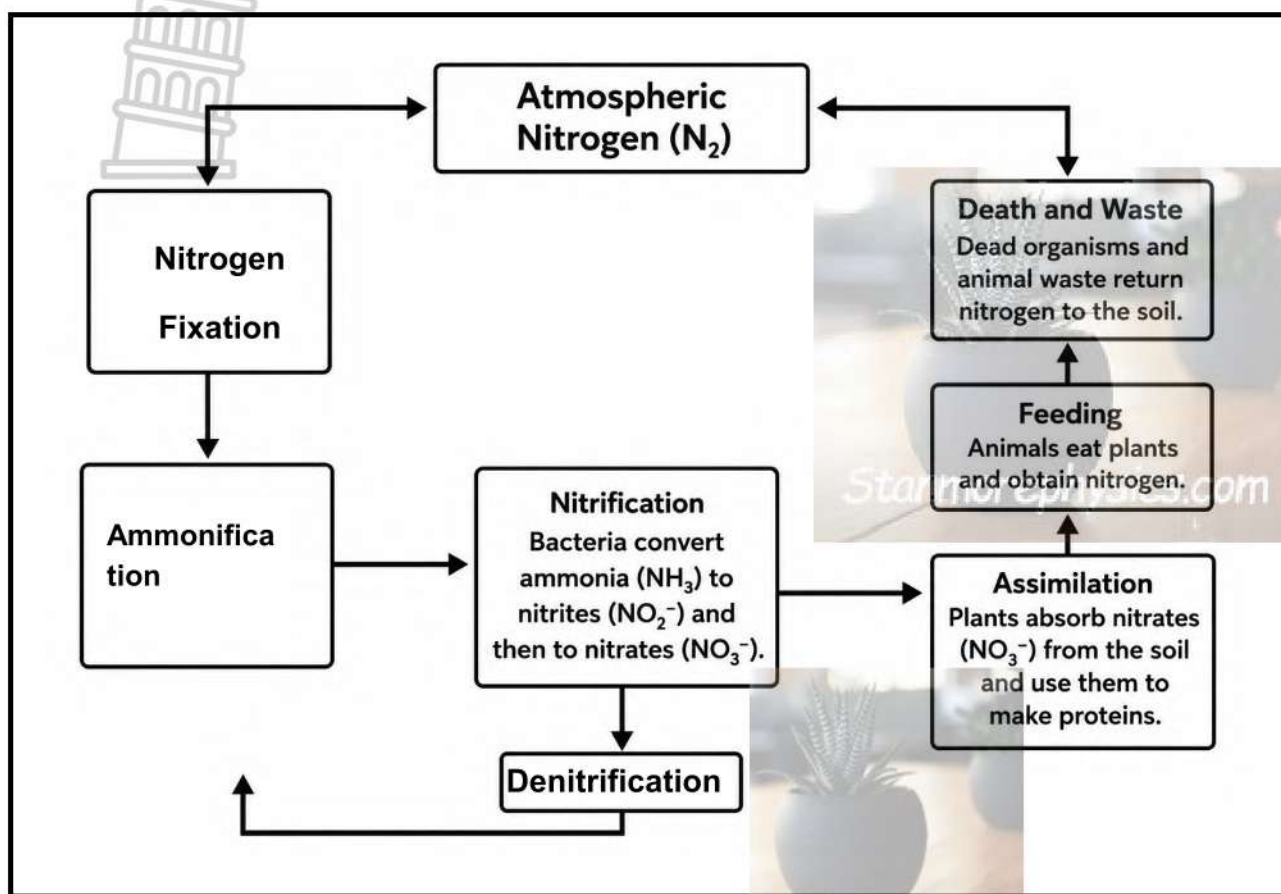
3.2.3 Explain why there are fewer organisms available at the top of the pyramid than at the bottom. (3)

3.2.4 The producers in this food pyramid contain 20 000 kJ of energy.

Calculate the amount of energy available to the primary consumers if only 10% of energy is transferred from one trophic level to the next. Show ALL your calculations. (2)

(10)

3.3 The flow diagram below shows a nutrient cycle.



3.3.1 Identify the above nutrient cycle. (1)

3.3.2 Give the nitrogen containing compound produce during ammonification. (1)

3.3.3 Describe the role of bacteria during denitrification. (2)

3.3.4 Explain what would happen to the above nutrient cycle if all nitrogen fixing bacteria disappeared from the soil. (2)

(6)

TOTAL QUESTION 3: [25]

TOTAL SECTION B: 50

GRAND TOTAL: 75



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GRADE 10

LIFE SCIENCES SEPTEMBER COMMON TEST MARKING GUIDELINE 2026

Marks: 75

N.B This marking guideline consists of 8 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. 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 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 A ✓✓
 1.1.2 B ✓✓
 1.1.3 B ✓✓
 1.1.4 D ✓✓
 1.1.5 B ✓✓

(2X5) (10)

- 1.2 1.2.1 Condensation ✓
 1.2.2 Biosphere ✓
 1.2.3 Ecosystem ✓
 1.2.4 Endemic ✓
 1.2.5 Atmosphere ✓

(1x5) (5)

- 1.3 1.3.1 A only ✓✓
 1.3.2 B only ✓✓

(2x2) (4)

- 1.4 1.4.1 Geological time scale ✓

(1)

- 1.4.2 Cenozoic ✓
 Mesozoic ✓
 Palaeozoic ✓
(Mark the first TWO only)

(2)

- 1.4.3 Cambrian ✓

(1)

- 1.4.4 Cretaceous ✓

(1)

- 1.4.5 145 million years ago ✓

(1)**(6)****TOTAL SECTION A 25**

SECTION B**QUESTION 2**

2.1 2.1.1 (a) 252✓ million years ago (1)

- (b) - Many species become extinct ✓
 - occurs over a short geological time ✓
 - Affects plants and animals worldwide ✓ (2)

(Mark the first TWO only)

2.1.2 Asteroid impact ✓/large asteroid strike the Earth (1)

- 2.1.3 - Habitat destruction ✓
 - Pollution ✓
 - Climate change ✓
 - Overfishing ✓
 - Introduction of invasive species ✓ (2)

(Mark the first TWO only)

- 2.1.4 - Plants died due to reduced photosynthesis ✓
 - Herbivores lost their food source ✓
 - Carnivores then died ✓ because there were fewer herbivores to eat ✓ Any (2)

- 2.1.5 - Dust and gases blocked sunlight ✓
 - preventing plants from making their own food ✓ (2)
(10)

2.2 2.2.1 Desert ✓ (1)

2.2.2 Grasses ✓ (1)

- 2.2.3 - Deforestation ✓
 - Overgrazing ✓
 - Urbanisation ✓
 - Pollution ✓
 - Invasive alien plants ✓
 - Climate change ✓ (2)
(Mark the first TWO only)

- 2.2.4 - Forest receives high rainfall ✓
 - Providing enough water for growth of tall evergreen plants ✓ (2)

(6)

- 2.3 2.3.1 Biogeography ✓ (1)
- 2.3.2 Pangaea ✓ (1)
- 2.3.3 - A population of camel lived in (a supercontinent) ✓ Pangaea
 - Pangaea split into different continents ✓ /tectonic plates moved/Continental Drift occurred which caused
 - the population of camels to split ✓ / migrated /be distributed
 - amongst the different continents ✓ (4)
- 2.3.4 - The related animals likely shared common ancestor ✓
 - As continents drifted apart populations became separated ✓
 - and evolved into different species ✓ (3)
- (9)

TOTAL QUESTION 2 [25]

QUESTION 3

- 3.1 3.1.1 - Decide on sample size ✓
 - Decide on apparatus to use ✓
 - Decide on recording tool ✓ (2)
- (Mark the first TWO only)**



- 3.1.2
- (a) - Repeat the investigation ✓
 - Increase the number of soil types ✓ /samples (1)
- (Mark the first ONE only)**
- (b) - 200g of each soil sample ✓ was used downloaded from Stanmorephysics
 - Same learner measured both air content and soil pH ✓
 - Litmus paper /porosity meter ✓ was used (1)
- (Mark the first ONE only)**

3.1.3

Samples	pH	Air content (%)
Sample A	5.5-6.5	35
Sample B	6.0-7.0	25

Marking Criteria:

Columns heading(C)	1
Rows heading (R)	1
Data correct in the table (T)	1:1-3 correct 2: All correct

(4)

3.1.4 Sample A ✓/B

(1)

(9)

3.2 3.2.1 (a) Lion✓

(1)

(b) - Grasshopper✓

- Rabbit✓

- Zebra✓

(Mark the first ONE only)

(1)

(c) - Grass✓

- Shrub✓

- Bush✓

- Tree ✓

(Mark the first ONE only)

(1)

3.2.2 Grass → Grasshopper → Snake → Lion✓✓

(2)

3.2.3 - Energy decreases at each trophic level✓

- Less food is available for organisms at higher trophic levels✓

- Top consumers require large amounts of energy✓

- that environment can no longer provide ✓

Any

(3)

3.2.4 $(10 \div 100) \times 20\,000\text{kJ} = 2000\text{kJ}$ ✓

(2)

(10)

3.3 3.3.1 Nitrogen cycle✓

(1)

3.3.2 Ammonia✓/ NH_3

(1)

3.3.3 - Denitrifying bacteria✓

- convert nitrates into free nitrogen ✓

(2)

3.3.4 - Very little atmospheric/ no atmospheric nitrogen would be converted into ammonia/nitrates ✓

- Plants would receive less usable nitrogen/nitrates ✓ and grow poorly downloaded from Stanmorephysics

- Leading to less or no protein for animals ✓

Any (2)

(6)

TOTAL QUESTION 3 [25]

TOTAL SECTION B 50

GRAND TOTAL 75

