



Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Departement van Onderwys
Porafensie Ya Kapa Botjhabela: Lefapha la Thuto

NATIONAL SENIOR CERTIFICATE

GRADE 10

SEPTEMBER 2025

LIFE SCIENCES

MARKS: 50

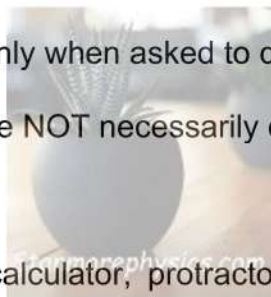
TIME: 1 hour

This question paper consists of 7 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer ALL the questions.
2. Write ALL the answers in your ANSWER BOOK.
3. Start the answer 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 where necessary.
11. Write neatly and legibly.



SECTION A

QUESTION 1

1.1 Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A to D) next to the question number (1.1.1 to 1.1.3) in the ANSWER BOOK, for example 1.1.4 D.

1.1.1 Part of the heart responsible for transporting oxygenated blood to all the body tissues.

- A Aorta
- B Septum
- C Semi lunar valve
- D Pulmonary vein

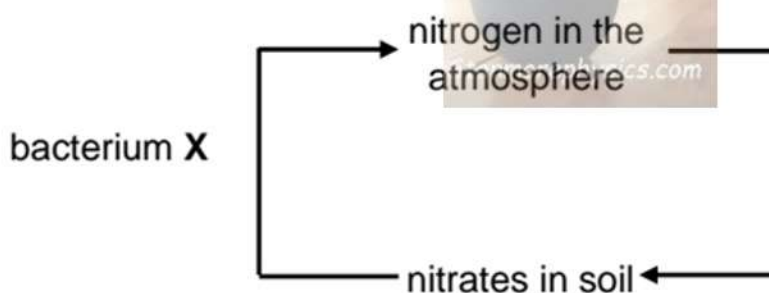
(2)

1.1.2 Animals that are only active at night are ...

- A diurnal
- B carnivores
- C lurnal
- D nocturnal

(2)

1.1.3 The letters in the diagram below represent the processes involved in the water cycle.



- A Nitrification
- B Nitrogen fixing
- C Denitrification
- D Decomposition

(2)

(3x 2) (6)

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 1.2.4) in the ANSWER BOOK.

1.2.1 The process by which populations change over time due to the changes in the environment. (1)

1.2.2 The largest artery in the body which leaves the left ventricle. (1)

1.2.3 A system where blood is transported from the lungs to the heart and from the heart to the lungs. (1)

1.2.4 The study of all the interaction or relationship within the ecosystem. (1)

(4X1) (4)

- 1.3 Indicate whether each of the descriptions 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 1.3.3) in the ANSWER BOOK.

COLUMN I		COLUMN II	
1.3.1	Abiotic factor/(s)	A: B:	Light Bacteria
1.3.2	The direction of a slope.	A: B:	Biodiversity Ecosystem
1.3.3	Movement of large masses of land over millions of years	A: B:	Continental Drift Ice-Age

(3 x 2) (6)

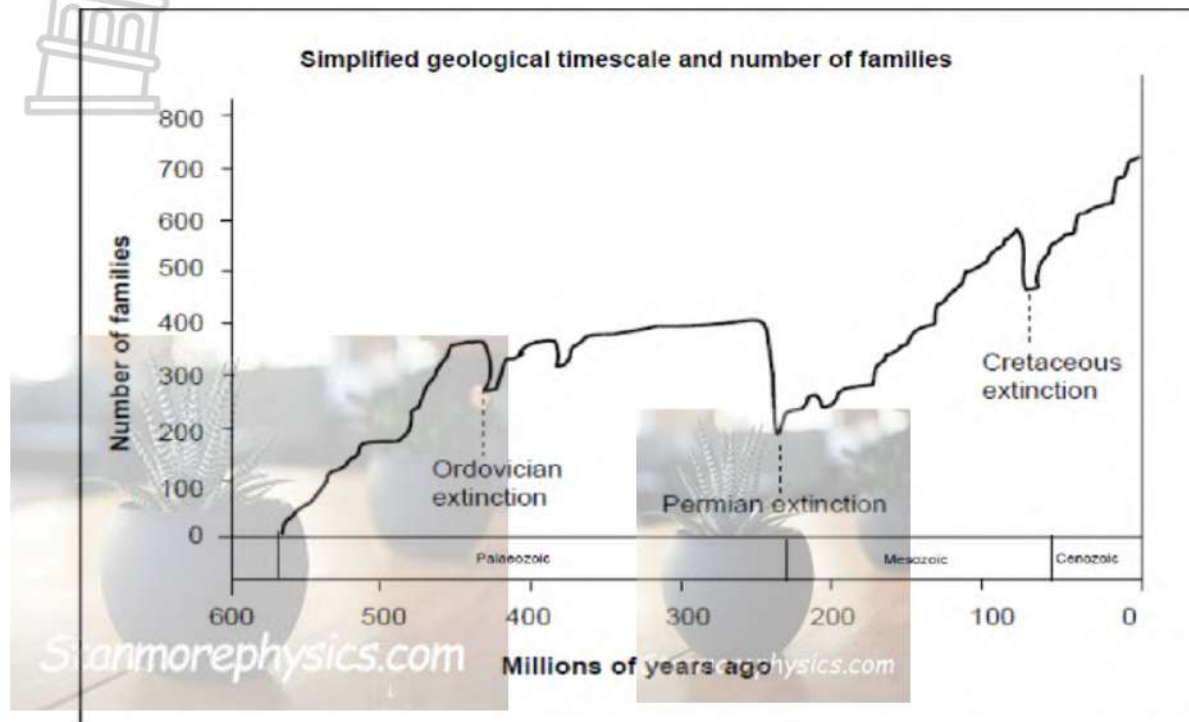
TOTAL SECTION A: (16)



SECTION B

QUESTION 2

2.1 The graph below shows the major/mass extinctions:



2.1.1 When did the Cenozoic era start? (1)

2.1.2 Which mass extinctions took place at the end of the Paleozoic era? (1)

2.1.3 How many families of species died at the end of the Paleozoic era?

Show all calculations.

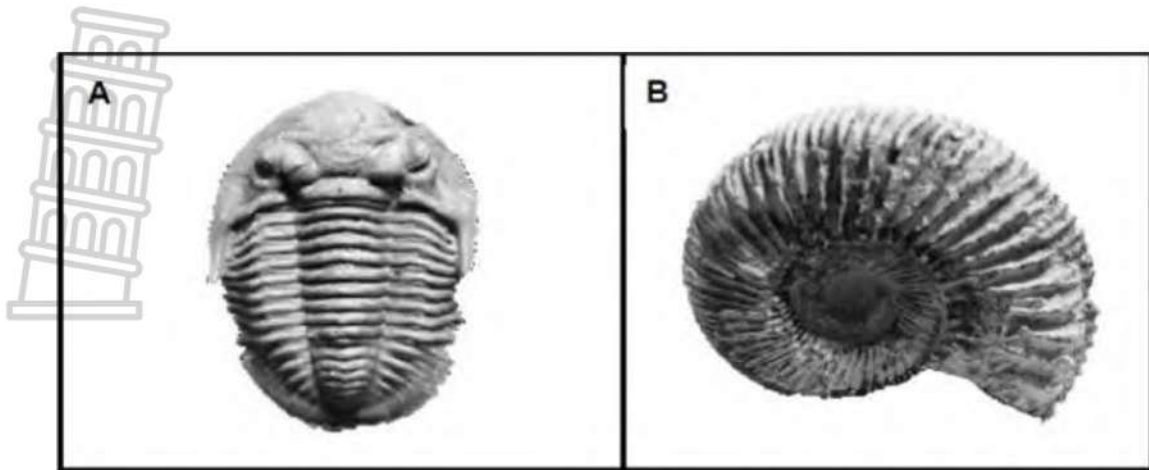
(3)

2.1.4 Explain why the amount of families of organisms increased so rapidly after each mass extinction.

(4)

(9)

2.2 Below are the diagrams of two different fossils:



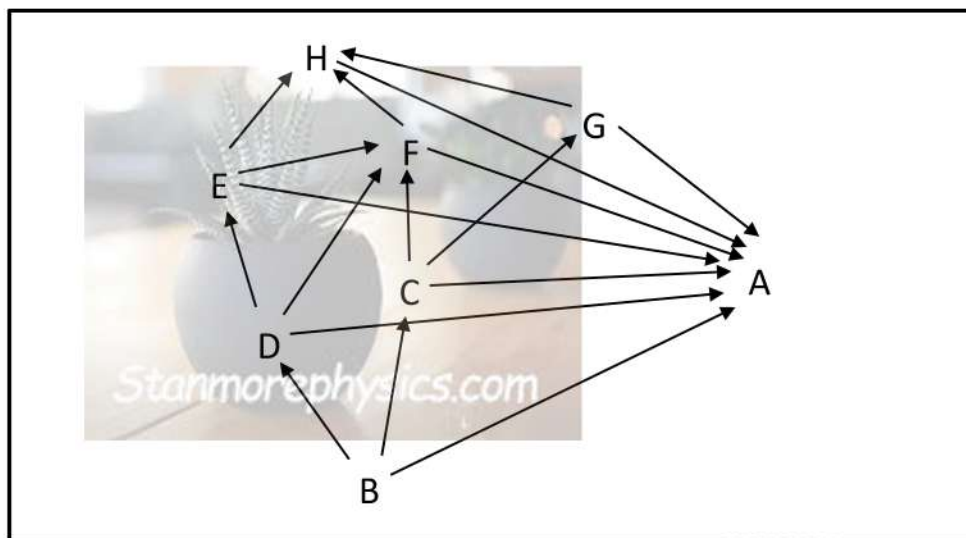
2.2.1 Describe how it is possible that these fossils are formed in sedimentary rocks. (4)

2.2.2 Name two other methods of how fossils are formed, except in sedimentary rocks. (2)

(6)

QUESTION 3

3.1 Study the diagram below and answer the questions that follow.



3.1.1 (a) Name the producer(s) in the food web. (Write only the letter) (1)

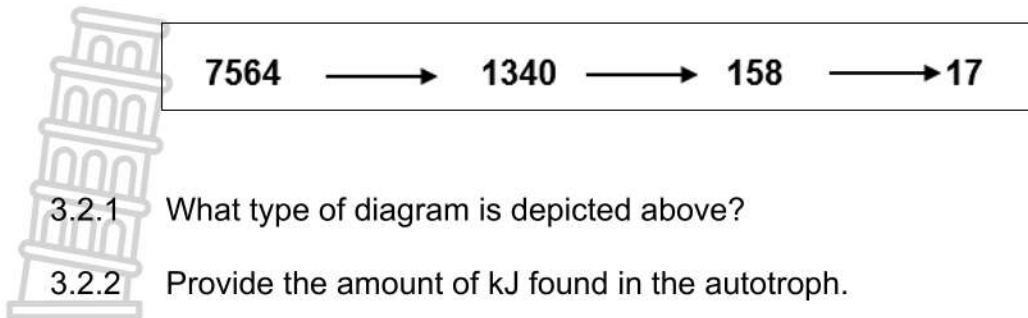
(b) Which organism is both a secondary and tertiary consumer? (1)

3.1.2 Identify a predator–prey relationship shown in the diagram. (1)

3.1.3 Explain why this diagram is called a **food web** and not a food chain (2)

(5)

3.2 The info below refers to the transfer of energy(kJ).



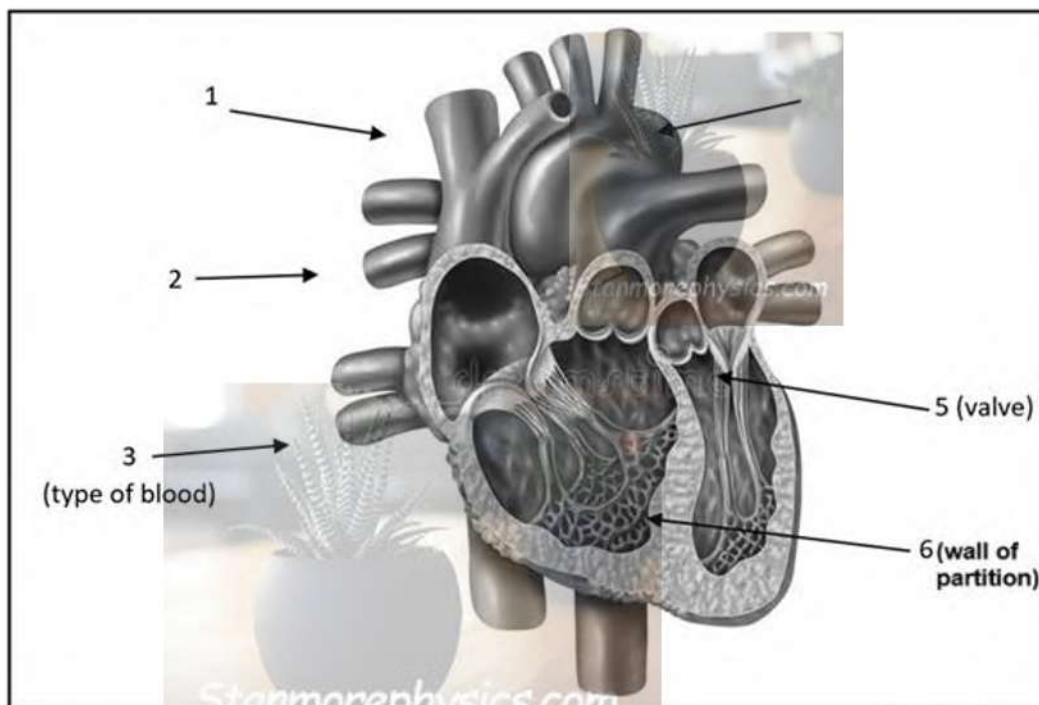
3.2.1 What type of diagram is depicted above? (1)

3.2.2 Provide the amount of kJ found in the autotroph. (1)

3.2.3 Calculate the percentage (decrease) of energy that is lost from the secondary consumer to the tertiary consumer. (4)

(6)

3.3 Study the diagram of the human heart and answer the questions that follow:



3.3.1 Label captions marked 3, 5 and 6. (3)

3.3.2 Why is the muscular wall of the left ventricle thicker than the right ventricle? (1)

3.3.3 What do we call the muscular wall in the question 3.3.2? (1)

3.3.4 What is the double epithelial lining that covers the heart called? (1)

3.3.5 Explain what happens to 5 (valve) during ventricular systole. (2)

(8)

TOTAL SECTION B: 34
GRAND TOTAL: 50



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SEPTEMBER 2025

Stanmorephysics.com

**LIFE SCIENCES
CONTROLLED TEST 3
MARKING GUIDELINE**

Stanmorephysics.com

MARKS: 50

This marking guideline consists of 5 pages.

PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. **If more information is given than marks allocated**
Stop marking when maximum marks are reached and put a wavy line and write '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 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.
19. **Changes to the marking guideline**
No changes may be made to the marking guideline without consulting the provincial internal moderator.

SECTION A

QUESTION 1

1.1

1.1.1 A ✓✓

1.1.2 D ✓✓

1.1.3 C ✓✓

(3x2) (6)

1.2

1.2.1 Evolution ✓

1.2.2 Aorta ✓

1.2.3 Pulmonary circulatory ✓

1.2.4 Ecology ✓

Pulmonary X

(4X1) (4)

1.3

1.3.1 A only ✓✓

1.3.2 None ✓✓

1.3.3 A only ✓✓

(3x2) (6)

TOTAL SECTION A: 16

SECTION B

QUESTION 2

2.1.1 Accept any value from 55 – 66 mya. ✓

(1)

2.1.2 Permian ✓ extinction.

(1)

2.1.3 $400✓ - 200✓ = 200✓$ families of species.

(3)

2.1.4 Mass extinction led to many niches/habitat left empty

The environment changed ✓

There was less competition for food ✓/space

Existing organisms moved into the open niches ✓/habitats

They adapted to the new environments ✓ and

New species ✓/families were formed

any (4)

- The organism dies and quickly gets covered with sediment✓
- Layers of sediment build up on the body of the organism over time✓
- These layers get compressed due to pressure build up✓
- Minerals start replacing the animal tissue and the body solidifies✓ (any 4)

2.2.2

- Frozen in ice✓
- Caught/stuck in tar✓
- Caught/stuck in amber✓
- Covered by volcanic ash✓ (any 2)

[6]

Question 3

3.1.1 a) B✓

(1)

b) F✓

(1)

3.1.2 D E (predator) and D (prey) ✓ /ED
 C F (predator) and C (prey) ✓ /FC
 C G (predator) and C (prey) ✓ /GC
 E H (predator) and E (prey) ✓ /HE
 F H (predator) and F (prey) ✓ /HF
 G H (predator) and G (prey) ✓ /HG
 E F (predator) and E (prey) ✓ /FE
 D F (predator) and D (prey) ✓ /FD
 C F (predator) and C (prey) ✓ /FC

Any 1 (1)

3.1.3 - A food chain shows a single, linear flow of energy from producer to top predator. ✓

- A food web shows many interconnected food chains ✓ – each organism can have more than one predator or prey. (2)

3.2.1 Food chain✓ (1)

3.2.2 7564✓ kJ (1)

3.2.3 $158 - 17 = 141$ ✓

$141 / 158 \times 100$ ✓

$= 89.24\%$ ✓ (4)

3.3.1 5 (bicuspid valve) ✓ (1)

5 – Bicuspid valve ✓ (1)

6 – Septum ✓ (1)

3.3.2 To pump blood with greater force /pressure to aorta ✓

OR

Left ventricle pumps blood (over longer distance) to the entire body, whereas the right ventricle pumps blood (over a shorter distance) to the lungs that's next to the heart. ✓

Any 1 (1)

3.3.3 Myocardium ✓ / cardiac muscle (1)

3.3.4 Pericardium ✓ (1)

3.3.5 5 (bicuspid valve) closes ✓, to prevent blood flowing back into the atrium ✓. (2)

TOTAL SECTION B: 34

GRAND TOTAL: 50

