KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

LIFE SCIENCES

COMMON TEST

SEPTEMBER 2024

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MARKS: 50

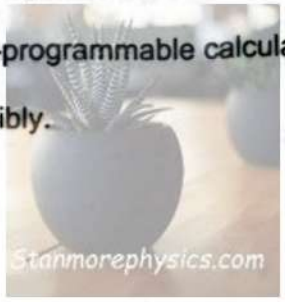
TIME: 1 Hour

This question paper consists of 7 pages.

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INSTRUCTIONS AND INFORMATION

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.



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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 1.1.3) in your ANSWER BOOK, for example 1.1.4 D.

1.1.1 Organisms in an ecosystem that break down the dead organic matter.

A Producers
B Primary consumers
C Secondary consumers
D Decomposers

1.1.2 Which ONE of the following occurred during ice ages?

A Sea levels were reduced
B Sea levels were increased
C Dinosaurs became extinct
D Plants evolved

1.1.3 An area that has a unique climate, soil type and type of vegetation is called a…

A biosphere.
B biome.
C population.
D ecosystem.

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(2 x 3) **(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 1.2.6) in your ANSWER BOOK.

1.2.1 Non - living things in an ecosystem

1.2.2 Exotic species of plant or animal that do not naturally live in a particular habitat and can cause harm to the ecosystem

1.2.3 A state of inactivity and reduced metabolism when temperatures drop and food become scarce

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1.2.4 Soil type that has low water holding capacity and poor nutrient retention

1.2.5 Large variety of different living organisms within the different ecosystems on Earth

1.2.6 Species that are indigenous, found only in one specific area and nowhere else in the world.

(6 x 1) **(6)**

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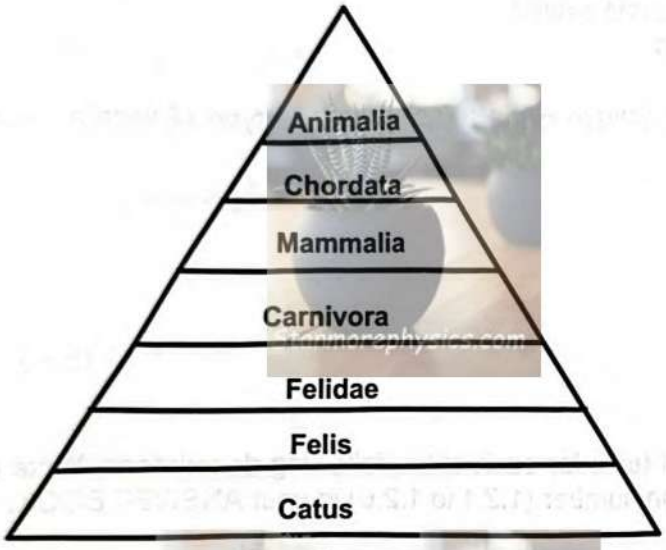
1.3 Indicate whether each of the statements in COLUMN I apply to **A ONLY, B ONLY, BOTH A AND B or NONE** of the items in COLUMN II. Write **A only, B only, both A and B,** or **none** next to the question number (1.3.1 to 1.3.2) in the ANSWER BOOK.

	COLUMN I	COLUMN II
1.3.1	Producers in an food chain	A: Grass B: Trees
1.3.2	Physiographic factors	A: Wind B: Slope

(2 x 2) **(6)**

1.4 Carolus Linnaeus established a hierarchical classification system of grouping similar organisms together.

He classified a cat as follows:



1.4.1 According to Linnaeus' system state the:

(a) Class to which the cat belongs **(1)**

(b) Species to which the cat belongs **(1)**

1.4.2 Write down the correct scientific name of the cat. **(1)**

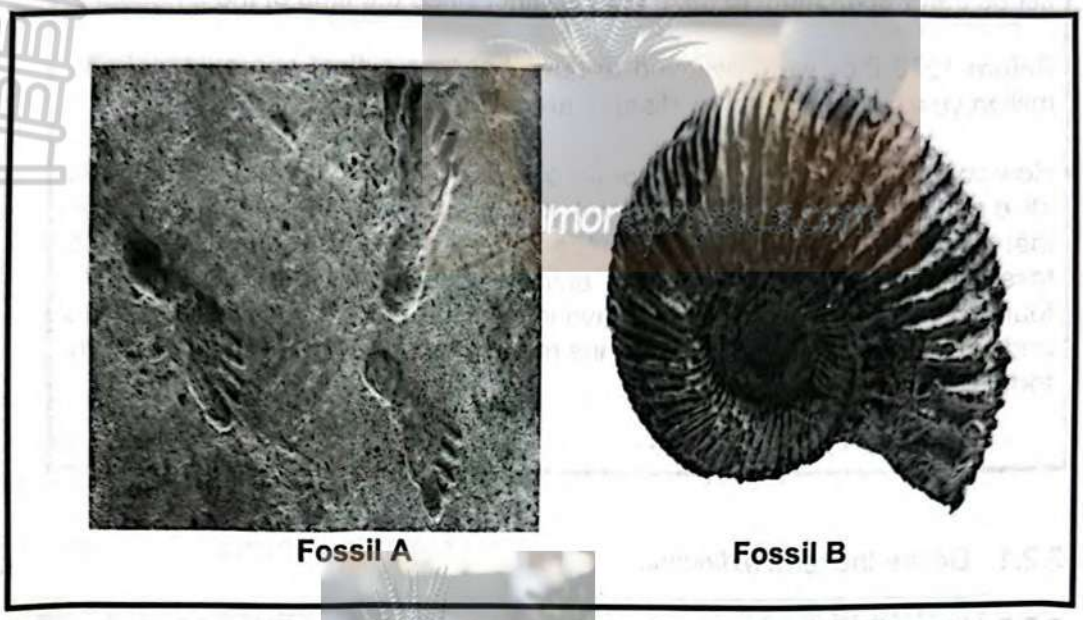
1.4.3 State the genus to which **humans** belong. **(1)**
(4)

TOTAL SECTION: A 20

SECTION B

QUESTION 2

2.1 The diagram below two types of fossils.



2.1.1 Identify the fossil as (**trace** or **ammonite**):

(a) **A** (1)

(b) **B** (1)

2.1.2 Describe how fossils **B** may have formed in sedimentary rock. (4)

2.1.3 Scientists use radioactive isotopes such as carbon-14 or potassium-40 to date fossils.

Give the name of this method of dating fossils (1)
(7)

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2.2 Read the extract below

In 1938, a Coelacanth was caught at the mouth of the Chalumna River on the east coast of South Africa. This 'living fossil' comes from a lineage of fishes that was thought to have been extinct since the time of the dinosaurs.

Before 1938 they were believed to have become extinct approximately 80 million years ago, when they disappeared from the fossil record.

How could Coelacanths disappear for over 80 million years and then turn up alive and unchanged well in the twentieth century? The answer seems to be that the Coelacanths from the fossil record lived in environments favouring fossilisation. Modern Coelacanths, both in the Comoros and Sulawesi were found in environments that do not favour fossil formation. They inhabit caves and overhangs in near vertical marine reefs, at about 200 m depth, off newly formed volcanic islands.

2.2.1 Define the term *extinction*. (2)

2.2.2 Name the place where the first coelacanth was caught. (1)

2.2.3 Explain why coelacanths are thought to be living fossils. (3)

2.2.4 According to the extract, give TWO reasons why Coelacanths disappeared for over million years and returned alive. (2)
(8)
[15]

QUESTION 3

3.1 The carbon cycle has been operating in nature for million years, but it has become unbalanced in the last 100 years.

Explain how each of the following processes affect levels of carbon dioxide in the atmosphere:

(a) Respiration (2)

(b) Photosynthesis (2)

(c) Decomposition (2)

(6)

3.2 Grade 10 learners investigated the effect of temperature and light levels on the growth of tomatoes.

The results of the investigation are shown in the table below:

DAY TEMPERATURE (°C)	YIELD PER PLANT: LOW LIGHT LEVELS (KG)	YIELD PER PLANT: HIGH LIGHT LEVELS (KG)
10	0.5	0.5
15	1.2	1.4
18	3.2	5.0
20	3.4	8.5
24	3.5	7.8
28	2.5	6.2

3.2.1 Give the day temperature in which the yield of tomatoes is the highest under high light levels. (1)

3.2.2 Identify the TWO independent variables. (2)

3.2.3 Calculate the percentage increase of the yield per plant between 15°C and 20°C under low light levels. Show all working. (3)

3.2.4 State ONE way in which the results could be made more reliable. (1)

3.2.5 State the conclusion of the above investigation. (2)

(9)

[15]

TOTAL SECTION: B 30

GRAND TOTAL: 50

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