KWAZULU-NATAL PROVINCE

EDUCATION

REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

LIFE SCIENCES

COMMON TEST

SEPTEMBER 2023

MARKS: 50

TIME: 1 Hour

This question paper consists of 8 pages.

Stanmorephysics

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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.

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

1.1.1 Decomposers …

A are secondary consumers
B produce their own organic food
C do not form part of food chains
D feed on dead organic matter

1.1.2 Carolus Linnaeus classified living organisms.

Which of the following sequences is correct according to Linnaeus classification system?

A Kingdom, class, phyla, order, family, genus, species
B Phyla, class, kingdom, family, genus, species, order
C Kingdom, phyla, class, order, family, genus, species
D Kingdom, phyla, class, order, genus, family. species

1.1.3 The scientific name for an African Lion is ***Panthera leo***.

According to the binomial system the word/term ***Panthera*** refers to the …

A class
B species
C genus
D family

1.1.4 Which ONE of the following is INCORRECT about the nitrogen cycle?

A Ammonia is changed into nitrates
B Lightning converts nitrogen into nitrates
C Nitrogen-fixing bacteria change nitrates into nitrites used by plants
D Nitrogen -fixing bacteria change nitrites into nitrates

(2 x 4) **(8)**

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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 your ANSWER BOOK.

1.2.1 The part of the earth and its atmosphere where living organisms are found

1.2.2 The region that is classified by species that live in it, has certain climate soil type and type of vegetation

1.2.3 Complete disappearance of a species from Earth

1.2.4 The study of fossils (1 x 4) **(4)**

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	Factors influencing the History of life on Earth	A: Levels of Oxygen B: Climate change
1.3.2	Organism with no true nucleus	A: Eukaryotes B: Prokaryotes

(2 x 2) **(4)**

1.4 The diagram below shows different types of fossils.



1.4.1 Name the type of rock where fossils are found. (1)

1.4.2 Identify the fossil that is a cast (imprint that was left on the rocks) between **A** and **B**. (1)

1.4.3 Name TWO methods of dating fossils. (2)

(4)

TOTAL QUESTION 1: [20]

TOTAL SECTION A: [20]

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SECTION B

QUESTION 2

2.1 The table below shows a geological time scale

ERA	PERIOD	MYA
Cenozoic	Quaternary	2
	Tertiary	65
Mesozoic	Cretaceous	140–65
	Jurassic	190–140
	Triassic	250–190
Palaeozoic	Permian	280–250
	Carboniferous	345–280
	Devonian	400–345
	Silurian	435–400
	Ordovician	515–435
	Cambrian	570–515

2.1.1 Scientists have discovered fossils of early humans in many locations in Africa.

State which:

(a) Era had the shortest duration? (1)

(b) Period started 65 MYA? (1)

2.1.2 About 543 MYA an event known as the 'Cambrian Explosion' occurred.

Explain what happened during this event? (2)

2.1.3 Scientists estimated that fossil *Megaconus* (nicknamed Jurassic squirrel) lived exactly in the middle of the Jurassic period.

Calculate how many million years ago that was. Show all your calculations. (2)

(6)

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2.2 Grade 10 learners did an investigation to determine the soil pH, humus content and permeability to water of three different soil samples

The following procedure was followed:

- Three soil samples were taken from the garden
- The three soil samples were analysed according to the level of pH using the litmus paper, humus content and permeability to water
- The results were collected and recorded

The table below show the results of the investigation.

	pH level in 100 g of soil sample	**% of Humus content in 100 g of soil sample**	**Permeability to water (ml of water passing through 100 g of soil per minute in %)**
Sample A	5.8	5	75
Sample B	9	10	5
Sample C	7.6	25	20

2.2.1 Identify TWO factors that were being investigated in the soil samples. (2)

2.2.2 Identify the soil **Sample** (**A, B** or **C**) that will have low water holding capacity. (1)

2.2.3 Give a reason for your answer in QUESTION 2.2.2. (2)

2.2.4 Explain the disadvantage of soil **Sample A** having low humus content. (2)

2.2.5 State TWO ways in which the reliability of the result could be increased. (2)

(9)

TOTAL QUESTION 2: [15]

QUESTION 3

3.1 Read the extract below

> Humans impact the physical environment in many ways: overpopulation, pollution, burning fossil fuels and deforestation. Changes like these have triggered climate change, soil erosion, poor air quality and undrinkable water.
>
> These negative impacts can affect human behaviour and can prompt mass migrations or battles over clean water.

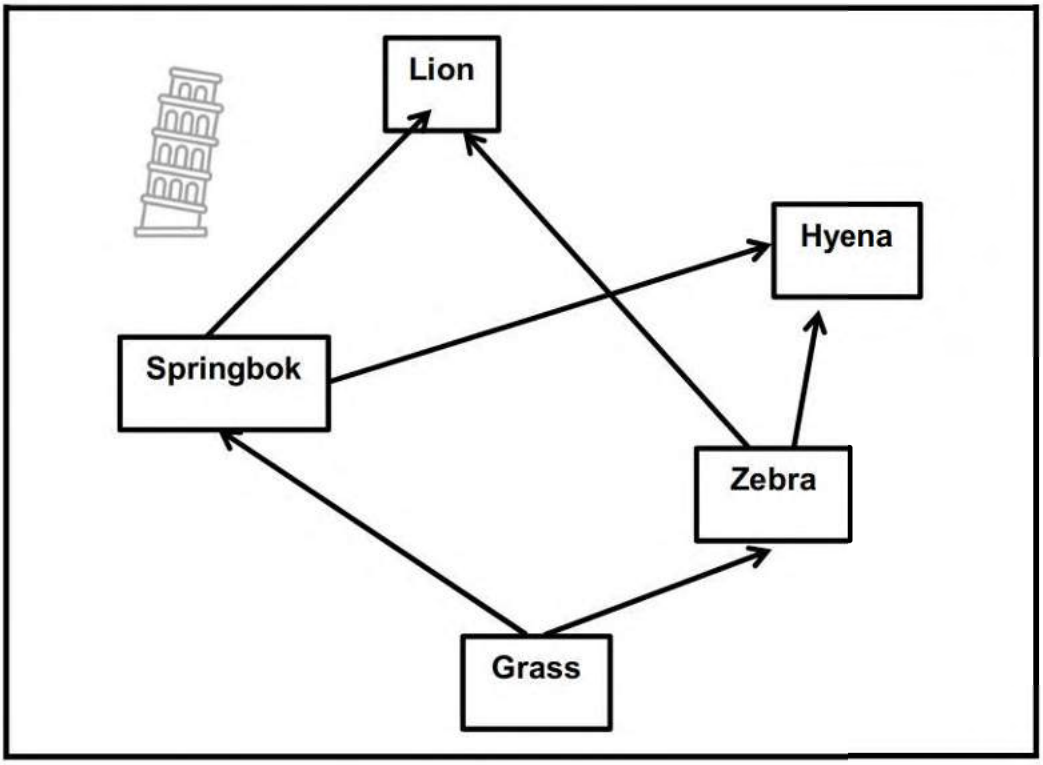
3.1.1 State TWO ways in which the humans impact the environment, as stated in the above extract. (2)

3.1.2 Explain the impact of overpopulation on deforestation. (3)

3.1.3 Suggest ONE way that the government can do to help reduce the air pollution in factories and industries. (1)

(6)

3.2 The diagram below represents a food web.



3.2.1 Use the food web above to identify:

(a) Herbivore (1)

(b) Secondary consumer (1)

3.2.2 State what would happen to the population of zebra if the hyena dies? (1)

3.2.3 Draw a food pyramid to show the three trophic levels amongst the grass, lion and springbok. (3)

(6)

3.3 Describe oxygen cycle. **(3)**

TOTAL QUESTION 3: [15]

TOTAL SECTION B: [30]

GRAND TOTAL: [50]

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