GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

EXEMPLAR

2023

LIFE SCIENCES

MARCH

QUESTION PAPER

GRADE : 10

TIME :1 hour

MARKS: 60

NUMBER OF PAGES : 08

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 ’n 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. Make ALL diagrams with pencil and captions with blue or black ink.
7. Draw diagrams and flow charts only when prompted.
8. The diagrams in the question paper are NOT necessarily drawn to scale.
9. You may NOT use graph paper.
10. You must use a non-programmable calculator, protractor and compass.
11. Write neatly and legibly.

SECTION A

QUESTION 1

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

1.1.1 What type of classification system where every organism has a dual name?

A Binomial system
B Taxonomy
C Hierarchical system
D Two-domain system.

1.1.2 The term *Binomial nomenclature* refer to…

A the scientific way of naming organisms.
B the first part of their generic name is similar.
C a generic name and a species name of an organism.
D two species names of an organism.

1.1.3 The role of bacteria at the carbon cycle is for…

A breaking down the organic compounds.
B assimilation of nitrogen compounds.
C photosynthesis
D chemosynthesis.

1.1.4 An organism without a defined nucleus is called…

A eukaryote.
B prokaryote.
C unicellular.
D multicellular

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

1.2 Give the correct **biological term** for each of the following descriptions. Write only the term next to the question numbers (1.2.1 to 1.2.4) in the ANSWER BOOK.

1.2.1 A species that occurs only in one specific area or region

1.2.2 Kingdom that includes all plants

1.2.3 A statement made by a scientist during an investigation, which is test and proven correct or incorrect

1.2.4 The variety of life forms on earth

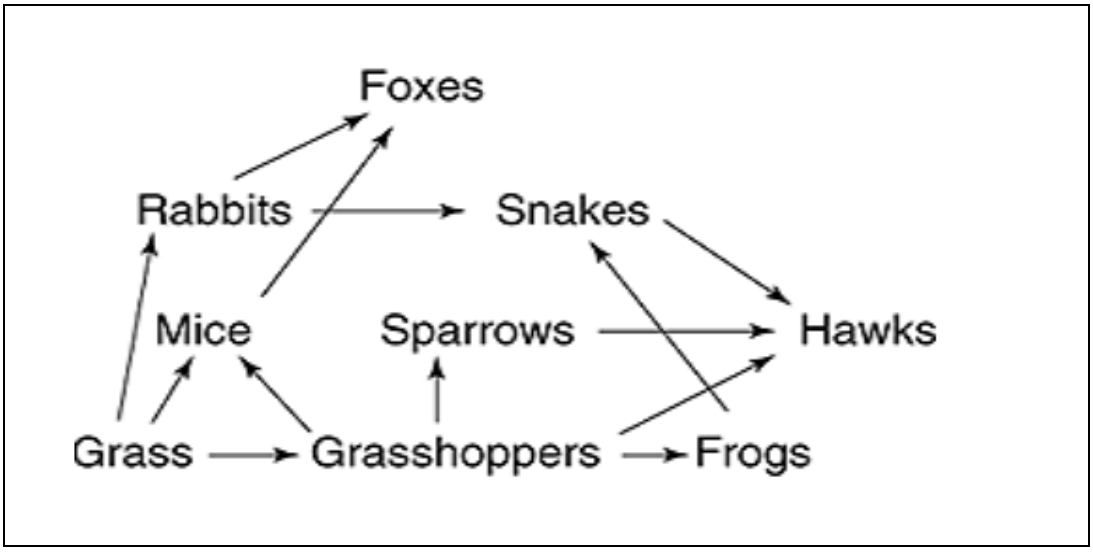
(4 x 1) **(4)**

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 - 1.3.2) in the ANSWER BOOK

COLUMN I	**COLUMN II**
1.3.1 Heterotrophs.	A: Primary consumers B: Secondary consumers
1.3.2 Five kingdom classification	A: Carolus Linnaeus B: Robert Whittaker

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

1.4 The diagram below illustrates a food web at a certain ecosystem. Study the diagram and answer the questions that follow:



1.4.1 Identify ONE primary consumer in this food web. (1)

1.4.2 Give ONE reason why foxes and snakes will still survive even if all the rabbits were to die out in the game reserve. (2)

1.4.3 How many secondary consumers are found on this food web. (1)

(4)

TOTAL SECTION A: 20

SECTION B

QUESTION 2

2.1 The table below shows the results of a study that investigated the effect of temperature and light on the yield of tomatoes in two greenhouses on a farm.

TEMPERATURE (^{0}C)	AVERAGE YIELD OF TOMATOES PER PLANT (kg)	
	LOW LIGHT LEVELS	HIGH LIGHT LEVELS
5	0,5	0,5
10	1,5	2,5
15	3,0	5,0
20	3,6	8,5
25	3,5	7,8
30	2,5	6,2

2.1.1 State TWO steps the investigator may have taken into consideration during the planning stage of the investigation. (2)

2.1.2 Identify the:

(a) Independent variable (1)

(b) Dependent variables (2)

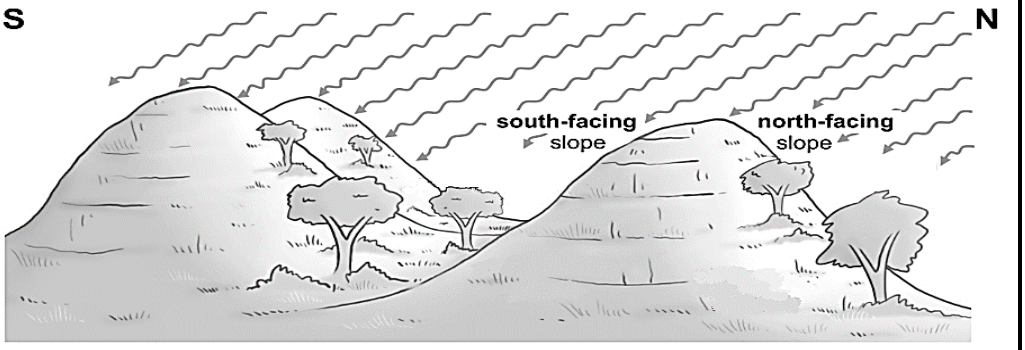
2.1.3 Calculate the average yield of tomatoes per plant in high light level. Show ALL your workings. (4)

2.1.4 State TWO ways in which the scientists could have improved the reliability of this investigation. (2)

2.1.5 Which temperature is best suited for the growth of tomatoes in both levels? (1)

(12)

2.2 Study the diagram below and answer the questions that follows:



2.2.1 Mention TWO physiographic factors that are seen on the diagram (2)

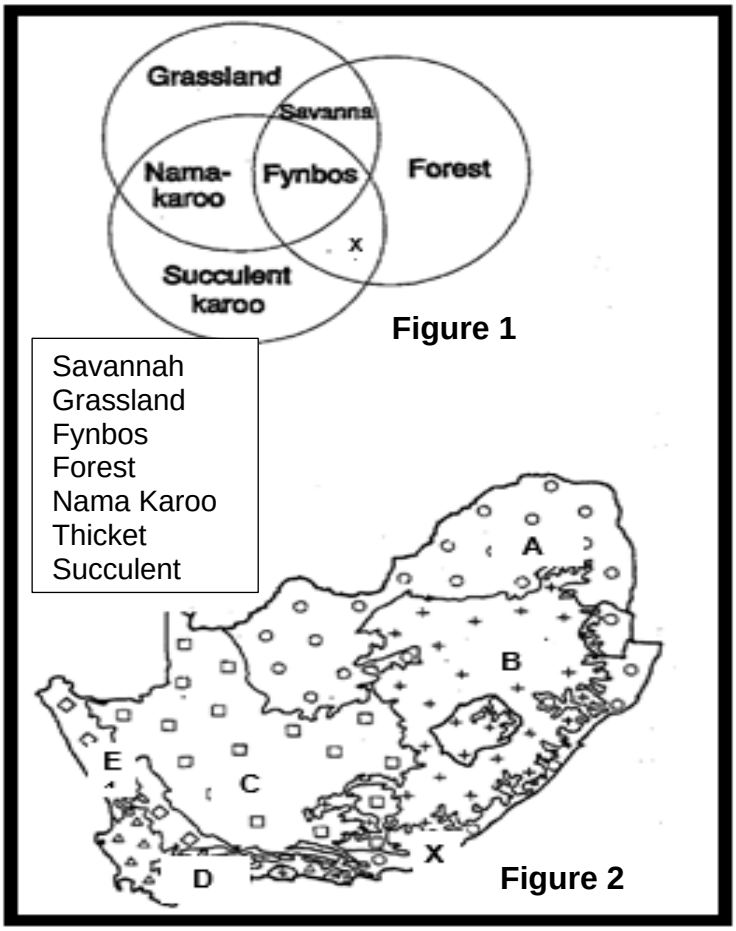
2.2.2 Which side of the ecosystem will be the coldest. (1)

2.2.3 Tabulate TWO differences between the north facing and south facing slopes of the mountain with reference to temperature and vegetation.

(5)
(8)
(20)

QUESTION 3

3.1 Study the diagram (Figure 1.1 and 1.2) below and answer the questions that follow.



3.1.1 Identify biome **X**. (1)

3.1.2 Define the term biome. (2)

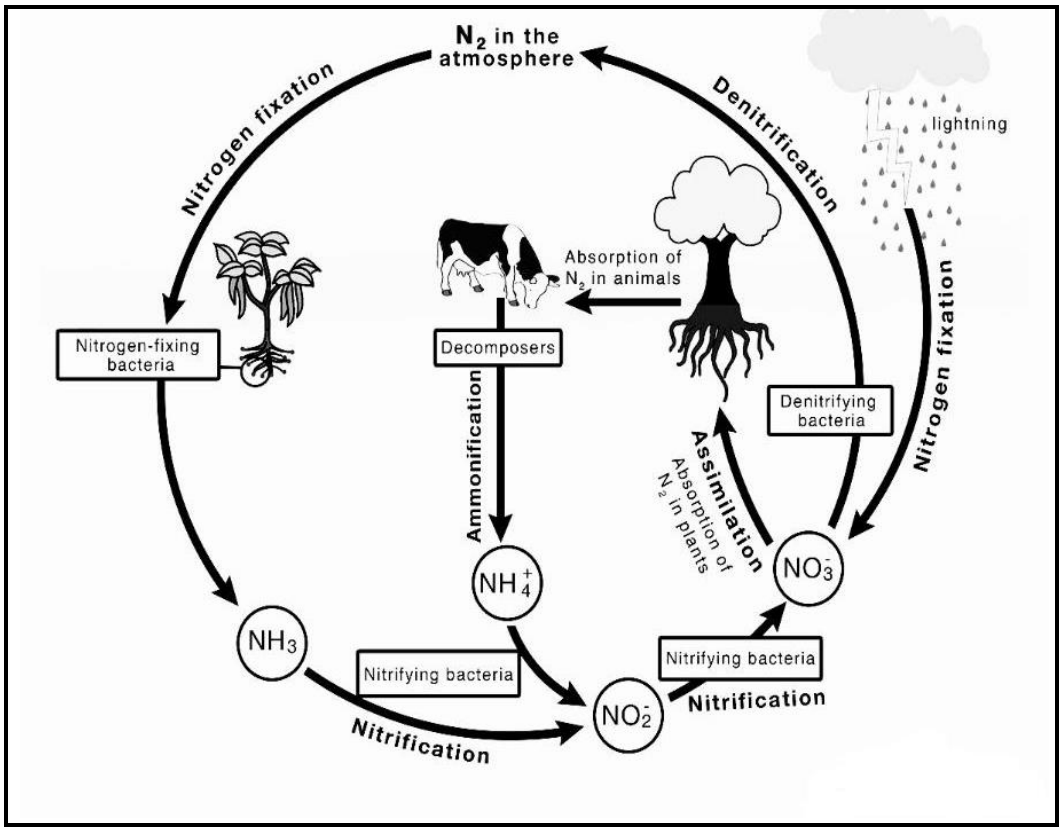
3.1.3 Name the biome which is rich in dwarf shrubs (1)

3.1.4 Discuss why vegetation influence the type of organisms found in biome **A**. (3)

3.1.5 Give THREE examples of animals found in the biome mentioned in QUESTION 3.1.4. (3)

(10)

3.2 Study the diagram below and answer the questions that follow:



3.2.1 Identify the diagram above. (1)

3.2.2 Why do living organisms need nitrogen? (1)

3.2.3 Mention TWO forms in which plants absorb nitrogen. (2)

3.2.4 Describe the role of the following types of bacteria in the nitrogen cycle

(a) Nitrifying bacteria (3)

(b) Denitrifying bacteria (3)

(10)

TOTAL SECTION B: 40

GRAND TOTAL: 60