KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 11

LIFE SCIENCES

COMMON TEST

MARCH 2024

MARKS: 50

TIME: 1 hour

This question paper consists of 9 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 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 The pistil consists of the …

A stigma, style and ovary.
B stigma, petal and ovary.
C style, petal and stamen.
D stigma, style and petal.

1.1.2 Antibodies are proteins that …

A break down pathogens.
B catalyse reactions.
C bind with specific antigens.
D are produced by T-cells that kill disease-causing viruses.

1.1.3 The following is a list of statements about sexual reproduction in plants.

(i) It generates variation in unstable environments
(ii) Seeds facilitate dispersal of offspring to more distant locations
(iii) Seed dormancy allows growth to be suspended until harsh conditions are reversed
(iv) Offspring can be produced rapidly

Which ONE of the following is a combination of advantages of sexual reproduction in plants?

A (i), (ii), (iii) and (iv)
B (i) and (iv)
C (ii), (iii) and (iv)
D (i), (ii) and (iii)

(3 x 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 concentration of sense organs at the anterior end of an animal leading to the formation of a head region.

1.2.2 Dominant generation in the life cycle of ferns.

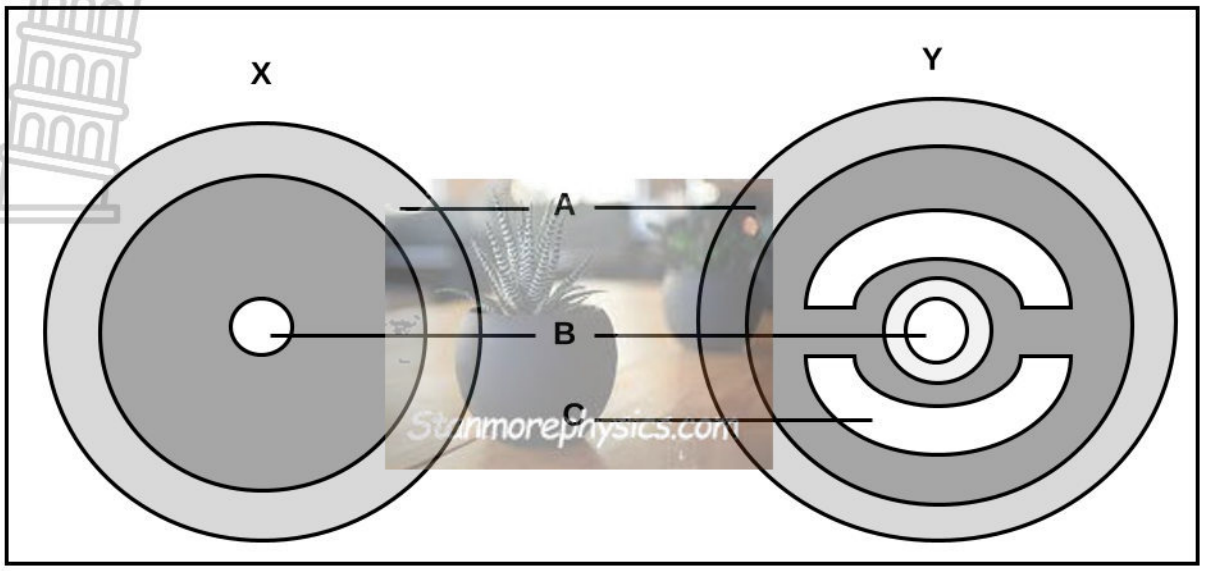
1.2.3 Whip-like structures which are used for movement in bacteria. (3 x 1) **(3)**

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 1.3.5) in the ANSWER BOOK.

	COLUMN I	COLUMN II
1.3.1	Animals that have a true body cavity	A: Acoelomate B: Coelomate
1.3.2	Characteristic of moss plants	A: Thallus B: Hyphae

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

1.4 The diagrams below represent the body plans of different phyla.



1.4.1 Identify part:

(a) **A** (1)

(b) **B** (1)

(c) **C** (1)

1.4.2 Name TWO phyla that are represented by the body plan **Y**. (2)

1.4.3 Give the LETTER of the diagram (**X** or **Y**) that represents:

(a) A diploblastic (1)

(b) An acoelomate (1)

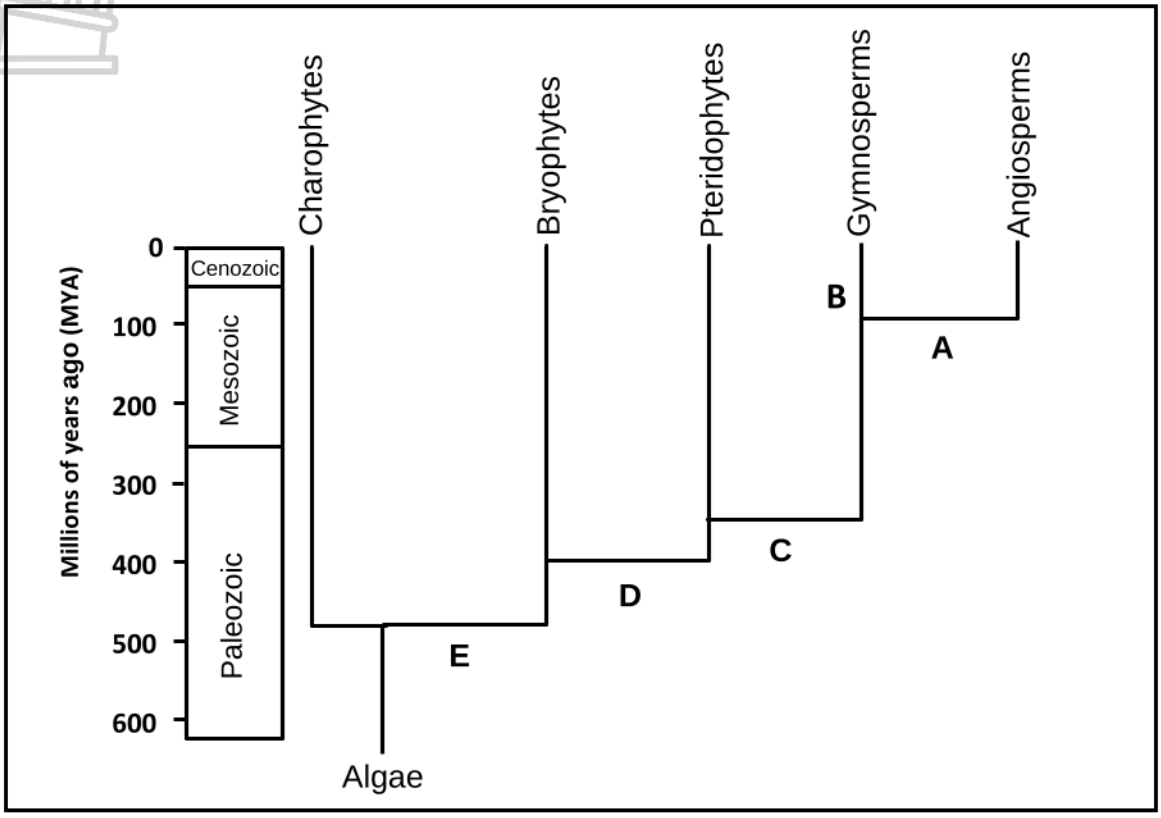
(7)

[20]

SECTION B

QUESTION 2

2.1 The diagram below represents the development of groups of plants over a period.



2.1.1 Name the kingdom to which the algae belongs. (1)

2.1.2 Name TWO plant divisions that were the first to exist in the Palaeozoic era. (2)

2.1.3 State how long ago did the seed plants arise on earth? (2)

2.1.4 Name ONE characteristic that is shared by Gymnosperms and Angiosperms that makes them closely related. (1)

2.1.5 Name the LETTER that represents?

(a) Vascular tissue (1)

(b) Seeds (1)

2.1.6 Name the group that is considered to be the ancestor of all land plants from the diagram above? (1)

(9)

2.2 Read the passage below.

Tuberculosis is the leading cause of death

Tuberculosis (TB) is caused by the bacterium Mycobacterium tuberculosis, which mostly affects the lungs and other organs in the human body. Bacteria are prokaryotic organisms. They survive more in people with a weakened immune system such as people living with the HI virus. TB is South Africa's leading cause of death.

HIV infection is a key factor in the TB epidemic. HIV sufferers have a higher risk of contracting TB and a greater chance of dying as they have a weaker immune system.

2.2.1 Name the bacterium that causes TB. (1)

2.2.2 State ONE reason why bacteria are considered prokaryotic? (1)

2.2.3 State whether virus is **cellular** or **acellular**. (1)

2.2.4 Give a reason for your answer in QUESTION 2.2.3. (1)

2.2.5 Explain why HIV patients have a higher risk of contracting TB and dying. (2)

(6)

[15]

QUESTION 3

3.1 Scientists conducted an investigation to determine the effect of different treatments on the amount of fungi that grows on bread.

The procedure was as follows:

- Five slices of bread were used and treated in different ways.
- Slice 1: was left dry
- Slice 2: added 20 mℓ tap water
- Slice 3: added 20 mℓ lemon juice
- Slice 4: added 20 mℓ sugar water
- Slice 5: added 20 mℓ bleach
- Each slice was placed in a zip-lock bag and kept in a cupboard for one week.
- After one week the slices were removed from the zip-lock bags and were observed the growth of the fungi.
- The percentage area covered by fungi in slices was calculated.

The results are shown in the table below.

TREATMENT ON BREAD	AREA COVERED BY FUNGI (%)
Dry bread	0
Tap water	25
Lemon juice	30
Sugar water	80
Bleach	10

3.1.1 Name the independent variable of the investigation. (1)

3.1.2 Give ONE reason why the zip-lock bags were placed in a dark cupboard for one week? (1)

3.1.3 Explain why the dry bread was included in the experiment. (2)

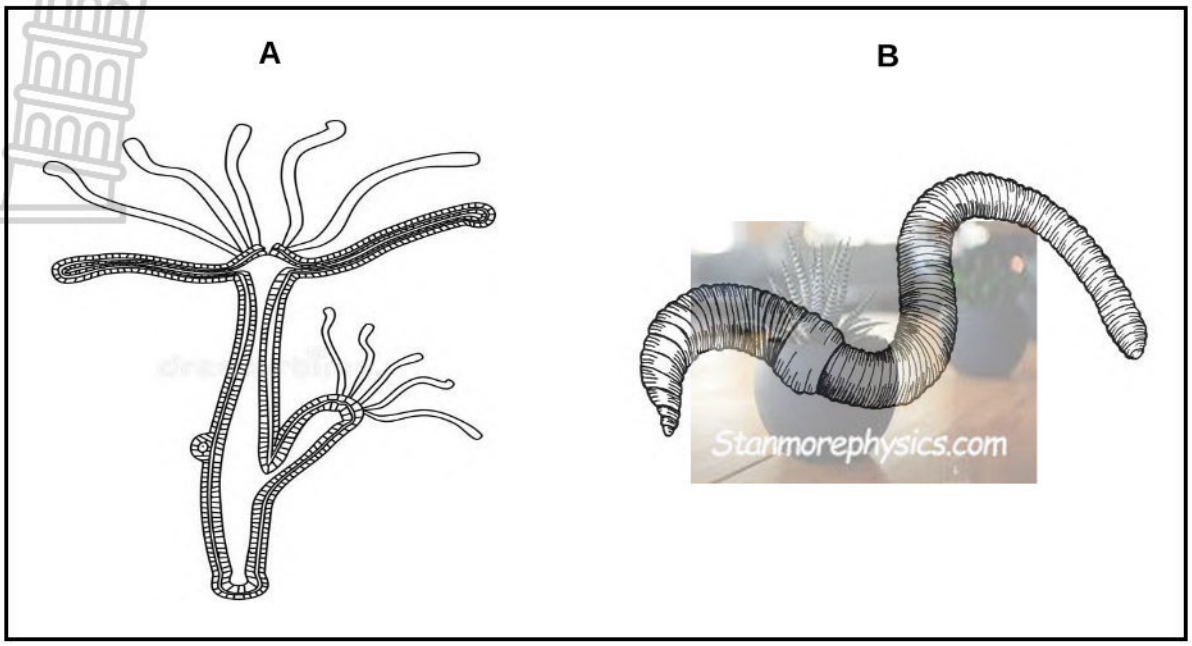
3.1.4 State ONE way that the scientists can improve the reliability of the investigation. (1)

3.1.5 Explain why fungi grows best on bread sprinkled with sugar water. (2)

3.1.6 Give TWO ways in which the scientists ensured the validity of the results of this investigation. (2)

(9)

3.2 The diagrams below show organisms that belong to two different phyla.



3.2.1 Name the kingdom to which both organisms belong. (1)

3.2.2 State the phyla to which organism **A** belongs. (1)

3.2.3 Give the type of symmetry of organism **B**? (1)

3.2.4 Describe the role of organism **B** as a decomposer. (1)

3.2.5 Identify the type of gut in the following two organisms:

(a) **A**

(b) **B** (2)

(6)

[15]

TOTAL SECTION B: 30

GRAND TOTAL: 50

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MARKING GUIDELINES

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MARCH 2024

MARKS: 50

This marking guideline consists of 4 pages.

SECTION A

QUESTION 1

1.1

1.1.1 A✓✓

1.1.2 C✓✓

1.1.3 D✓✓ (3 x 2) **(6)**

1.2

1.2.1 Cephalisation✓

1.2.2 Sporophyte✓

1.2.3 Flagella/flagellum✓ (1 x 3) **(3)**

1.3

1.3.1 B only✓✓

1.3.2 A only✓✓ (2 x 2) **(4)**

1.4

1.4.1 (a) ectoderm ✓ (1)

(b) gut ✓ (1)

(c) coelom ✓ (1)

1.4.2 - Annelida ✓
- Arthropoda ✓
- Chordata ✓
(mark first TWO only) (2)

1.4.3 (a) X✓ (1)

(b) X✓ (1)

(7)

TOTAL SECTION A: [20]

SECTION B

QUESTION 2

2.1

2.1.1 Protista ✓ (1)

2.1.2 - Charophytes ✓
- Bryophytes ✓
(mark first TWO only) (2)

2.1.3 350 ✓
MYA✓ (2)

2.1.4 Presence of seeds ✓ (1)

2.1.5 (a) D ✓ (1)

(b) C ✓ (1)

2.1.6 Algae ✓ (1)

(9)

2.2

2.2.1 Mycobacterium ✓ (1)

2.2.2 - Lack of nucleus ✓
- Does not have membrane bound organelles ✓
(mark first ONE only) (1)

2.2.3 Acellular ✓ (1)

2.2.4 - non-living✓
- lack of cellular structures ✓
- lack of most organelles found in a cell ✓ Any (1)

2.2.5 HIV lowers the body's immunity✓ / white blood cell count therefore it cannot defend the body against TB ✓ (2)

(6)

[15]

QUESTION 3

3.1

3.1.1 Treatment ✓ on bread (1)

3.1.2 Fungi grow best in dark and warm places✓
(mark first ONE only) (1)

3.1.3 - Act as a control ✓
- To compare results between treated and not treated bread. ✓ (2)

3.1.4 - Increase sample size ✓
- Repeat investigation ✓
(mark first ONE only) (1)

3.1.5 - Sugar provides energy/food ✓
- For fungi therefore more food will allow fungi to grow faster ✓ (2)

3.1.6 - placed bread in zip lock bags✓
- all slices were placed in cupboard✓
- all slices left for one week/ same time✓
- slices of bread of the same size✓
- same amount/quantity (200ml) of treatment✓
(mark first TWO only) (2)

(9)

3.2

3.2.1 Animalia ✓ (1)

3.2.2 Cnidaria ✓ (1)

3.2.3 Bilateral ✓ (1)

3.2.4 They decompose/ break down dead organic material ✓ (1)

3.2.5 Cnidaria - blind gut ✓ (1)

Annelids- through gut ✓ (1)

(6)

TOTAL QUESTION 3: [15]

GRAND TOTAL: 50