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STANMORE SECONDARY SCHOOL

EXAMINER: MRS J. RAMSEWAK

MODERATOR: MS C. MOODLEY

MARKS: 60

DURATION: 1 HOUR

LIFE SCIENCES

CONTROLLED TEST

NOVEMBER 2022

GRADE 10

N.B. This question paper consists of 3 QUESTIONS and 6 PAGES.

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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. Number the answers correctly according to the numbering system used in this question paper.
4. Present your answers according to the instructions of each question.
5. ALL drawings must be done in pencil and labelled in blue or black ink.
6. Write neatly and legibly.

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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 1.1.4.) in the ANSWER BOOK, for example 1.1.6 D.

1.1.1. The basic unit of life is a ....

A. cell
B. zygote
C. protoplasm
D. nucleus

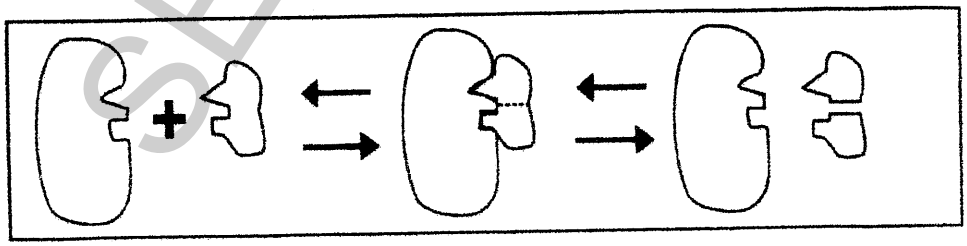
1.1.2. A general group of plants adapted to grow in extremely dry regions are referred to as ....

A. hydrophytes
B. xerophytes
C. mesophytes
D. desert plants

1.1.3. In which of the following processes is mitosis not involved?

A. Replacement of cells in a cut through the skin.
B. Production of sperms in the testes.
C. Production of identical daughter cells.
D. Growth of an organism.

1.1.4. Which property of enzymes is represented by the sequence of diagrams below?



A. Enzymes can speed up a chemical reaction.
B. Enzymes can lower the activation energy.
C. Enzymes are proteins.
D. Enzymes are specific in their function

4 x 2 **(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. – 1.2.6.)

1.2.1. The loss of water in the form of water vapour through aerial parts of the plant.

1.2.2. Feeding levels of different organisms within an ecosystem.

1.2.3. The form in which nitrogen is absorbed by plants through the roots.

1.2.4. Cell organelles that are centres for cellular respiration.

1.2.5. A deficiency disease associated with bleeding gums.

1.2.6. Red pigment in red blood cells that transport oxygen.

6 x 1 **(6)**

1.3. Indicate whether each of the descriptions in Column I apples 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. Undifferentiated cells present at the tips of stems and roots that are actively dividing by mitosis to produce new cells.	A. Meristematic tissue B. Permanent tissue.
1.3.2. An abiotic factor relating to soil.	A. Physiographic B. Edaphic
1.3.3. Organisms that cannot produce their own food.	A. Heterotrophic B. Decomposers

3 x 2 **(6)**

SECTION A: 20 MARKS

SECTION :B

QUESTION :2

2. 1 A scientist wanted to investigate whether light is required for the germination of seeds. She filled two plant pots of the same size with equal amounts of soil.

Pot 1 was labelled "LIGHT'and Pot 2 "Dark"
(5) **Five lettuce seeds were planted in each of the pots. Both plants were given sufficient water.**

Pot 1 was put in direct sunlight.
A cardboard box was placed over Pot 2 and no light was allowed to enter.

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2.1.1. Write down a hypothesis for the investigation. (2)

2.1.2. Identify the :

a. independent variable (1)

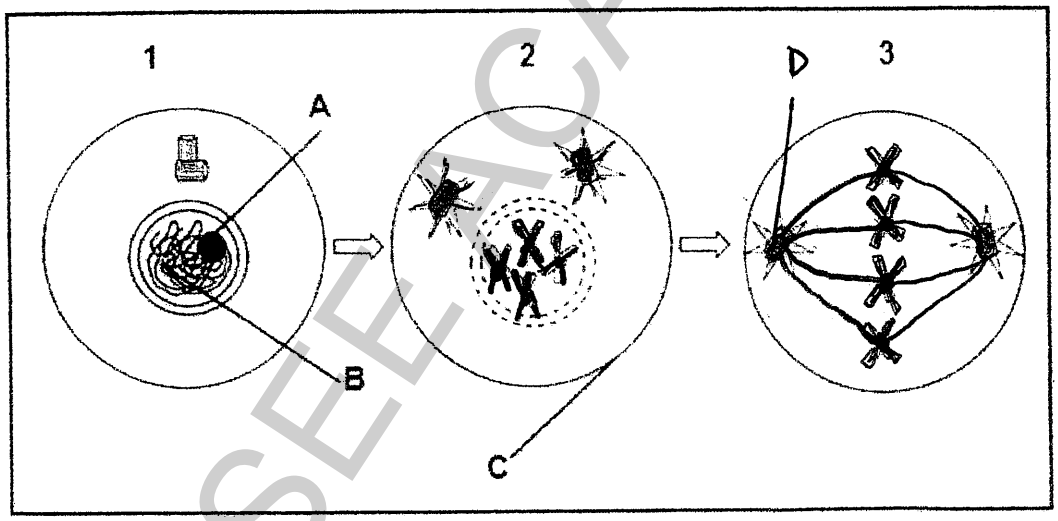
b. dependent variable (1)

2.1.3. List **TWO** variables that were kept constant. (2)

2.1.4. Suggest **TWO** ways in which the reliability of this experiment could be improved. (2)

(8)

2. 2 The diagrams below represent different phases of a particular process.



2.2.1 Identify the process represented above. (1)

2.2.2. Label structures **A, B** and **C**. (3)

2.2.3. Provide a label for **D** and state its function. (2)

2.2.4. Which phase is represented by **diagram 3**? (1)

2.2.5. Draw a labelled diagram of a phase which follows the phase mentioned in **QUESTION 2.2.4** above. (3)

2.2.6. Explain what would happen if the process mentioned in **QUESTION 2.2.1** does not take place. (2)

(12)

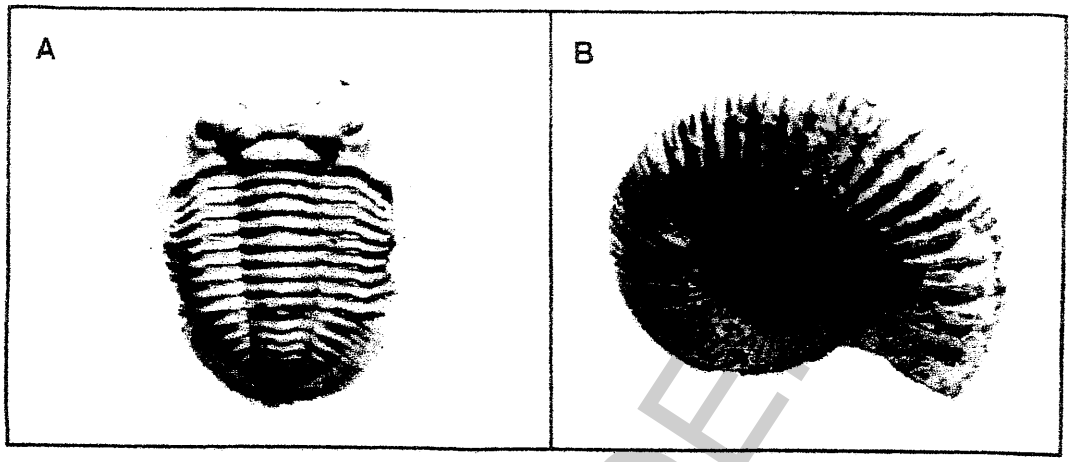
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QUESTION 3

3.1. The images below are two different fossils.



3.1.1. Identify:

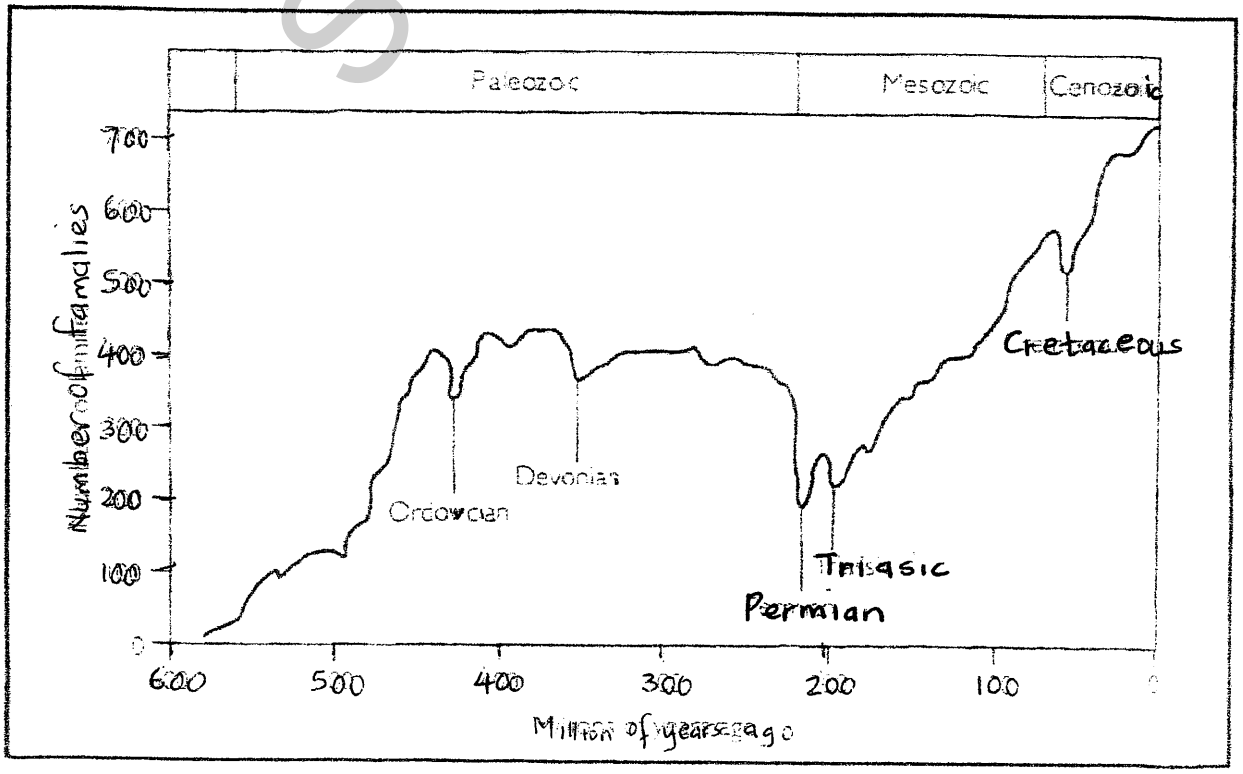
a. Fossil **A** (1)

b. Fossil **B** (1)

3.1.2. Describe how these fossils may have formed in sedimentary rock. (4)

3.1.3. Scientists use radioactive isotopes such as carbon-14 or potassium-40 to date fossils. What is this method of dating fossils called? (1)
(7)

3.2. The diagram below represents a simplified geological time-scale showing how the number of families (groups of related species) has changed over a period of time.



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3.2.1. How many mass extinctions took place since the creation of the earth? (1)

3.2.2. Which mass extinction took place towards the end of the Palaeozoic era? (1)

3.2.3. Which era had the longest duration? (1)

3.2.4. Name **TWO** factors or events known to have caused mass extinctions. (2)

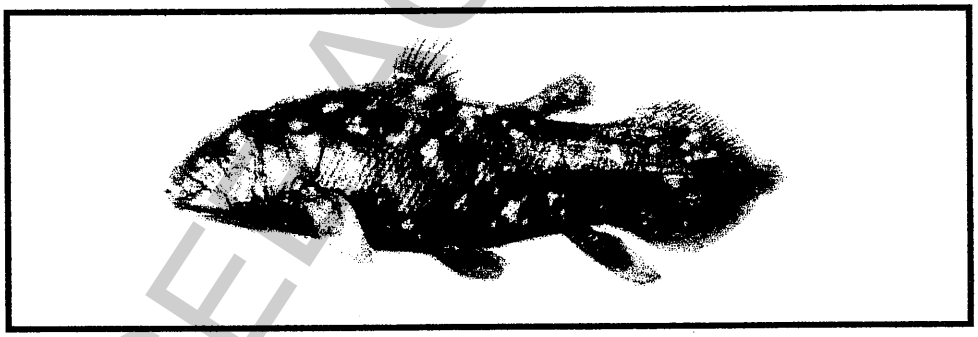
3.2.5. When did the Triassic extinction take place? (1)

3.2.6. Which extinction was the biggest in terms of the number of families that went extinct? (1)

3.2.7. Scientists believe that we are currently experiencing the sixth mass extinction. What is thought to be the cause of this mass extinction? (1)

(8)

3.3. The diagram below shows a picture of a coelacanth.



3.3.1. Why are coelacanths thought to be living fossils? (2)

3.3.2. Where was the first live coelacanth caught? (1)

3.3.3. Coelacanths are thought to be the missing link between fish and amphibians.

What do we call the fossil that have common features of two different groups and show the change from one group to the other? (1)

3.3.4. Give **ONE** example of any other missing link that you have studied other than the coelacanth. (1)

(5)

[20]

SECTION :B 40 MARKS

TOTAL: 60 MARKS

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