education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 11

LIFE SCIENCES P2

NOVEMBER 2024

MARKS: 150

TIME: 2½ hours

This question paper consists of 15 pages.

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INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Write ALL the answers in your ANSWER BOOK.
3. Start the answer 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 all drawn to scale.
9. Do NOT use graph paper.
10. You must use a non-programmable calculator, protractor and compass where necessary.
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 answer and write only the letter (A–D) next to the question numbers (1.1.1 to 1.1.10) in the ANSWER BOOK, e.g. 1.1.11 D.

1.1.1 Which organism does not belong to a kingdom?

A Virus
B Fungus
C Bacterium
D Protozoa

1.1.2 Which ONE of the following produces antibodies?

A Blood plasma
B Lymphocytes
C Macrophage
D Red blood cells

1.1.3 The following is a list that describe viruses:

(i) they play an important role as decomposers
(ii) they are major pathogen of human
(iii) they are parasites
(iv) they produce within a host cell

Which ONE of the following combinations are of biological importance in viruses?

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

1.1.4 Which of the following combinations are the two essential parts of a flower for reproduction?

A Ovary and Anther
B Corolla and Ovary
C Pistil and Stamens
D Calyx and Ovary

1.1.5 The gametophyte is the dominant generation in …

A bryophytes.
B gymnosperms.
C pteridophytes.
D angiosperms.

1.1.6 Which ONE of the following invasive alien plant control measures are the most effective and the least threatening to our indigenous biodiversity?

A Slashing
B Chemical control
C Biological control
D Burning

1.1.7 The zygote of a moss plant …

A results from the fusion of two spores.
B develops into the sporophyte.
C develops into a protonema.
D is part of the gametophyte generation.

1.1.8 The outer layer of a Cnidarian is the …

A ectoderm and contain specialized protective stinging cells.
B ectoderm and has modified cells for digestion.
C mesoglea and comprises non-living substance.
D endoderm and is concerned mainly with locomotion.

1.1.9 Which of the following may be reasons for the exploitation of natural resources?

(i) poverty and shortage of food
(ii) use of indigenous plants for medical purposes
(ii) use of wood to generate heat energy
(iv) for entertainment

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

1.1.10 The following are some of the gases which surrounds the earth.

(i) Argon
(ii) Carbon dioxide
(iii) Copper dioxide
(iv) Methane

Which combination below represent greenhouse gases?

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

(10 x 2) **(20)**

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 1.2.7) in the ANSWER BOOK.

1.2.1 Organisms that have a define nucleus

1.2.2 The process used by lymphocytes to engulf bacteria

1.2.3 A symbiotic relationship in which one organism benefits while the other is harmed

1.2.4 The movement of individuals of a population out of a habitat

1.2.5 Pollution that results of warm or very hot water waste pumped into a water body

1.2.6 The phase during population growth where animals adapt to new environment

1.2.7 Total head count of all individuals in a population

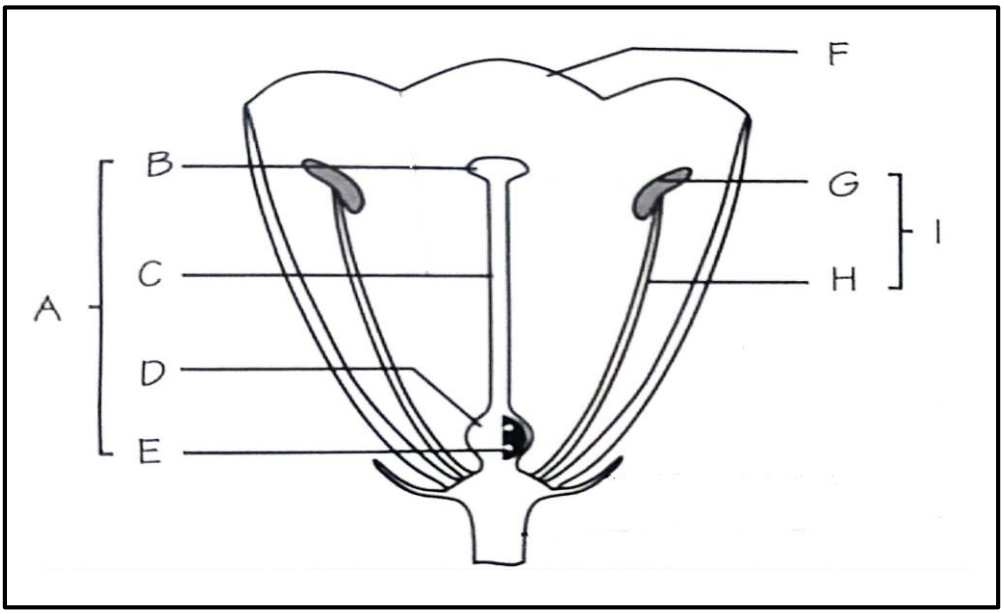
(7 x 1) **(7)**

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 numbers (1.3.1 to 1.3.4) in the ANSWER BOOK.

COLUMN I		COLUMN II	
1.3.1	Whip-like structures used for locomotion in bacteria	A: B:	Flagella Cilia
1.3.2	Part that form from a fertilized ovum	A: B:	Fruit Seed
1.3.3	Kitten competing for their mother's milk	A: B:	Interspecific competition Intraspecific competition
1.3.4	Resource partitioning	A: B:	Forest stratification Lions and leopards

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

1.4 The diagram below represents the structure of a flower.



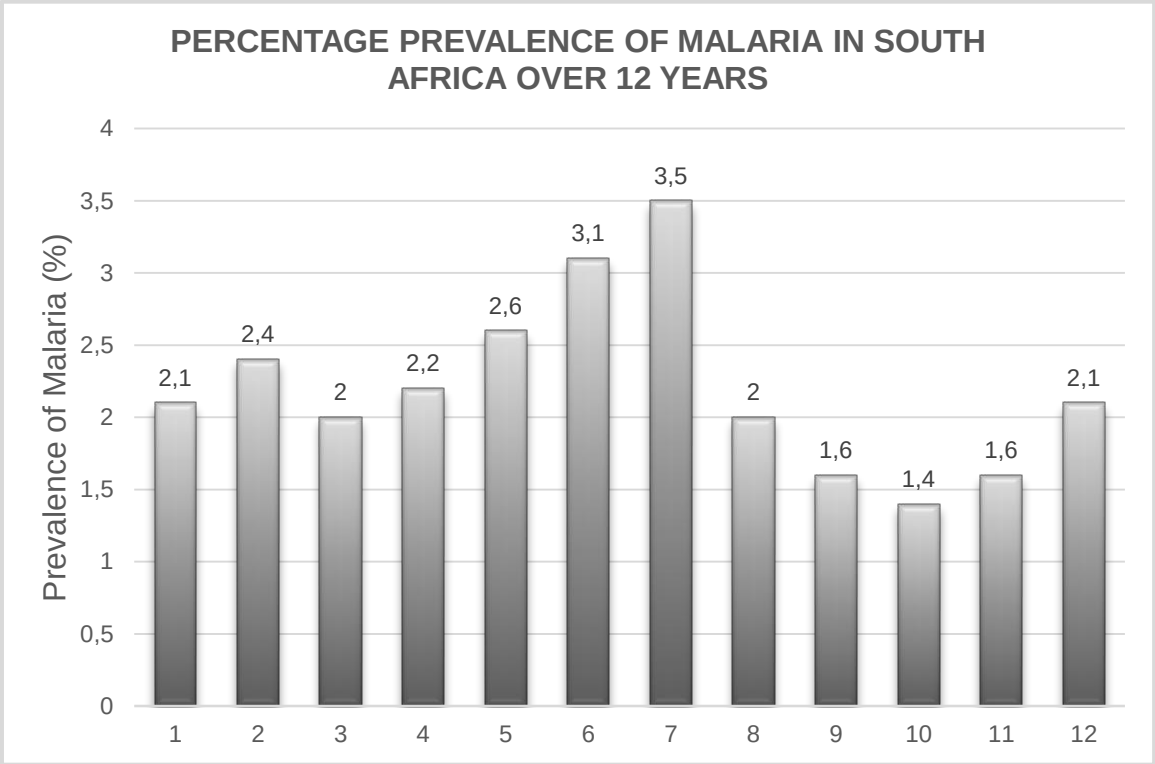
1.4.1 Label part **F** and **H**. (2)

1.4.2 Name the LETTER and the PART which produces pollen. (2)

1.4.3 Give ALL the letters that represent the female whorl. (2)

1.4.4 Give the collective name for all the parts labelled as **I.** (1)
(7)

1.5 The graph below shows prevalence of malaria over years.



1.5.1 In which year was the percentage of malaria the highest? (1)

1.5.2 Calculate the percentage increase in malaria infections from year **3** to **6.** (3)

1.5.3 Name TWO precautionary methods that can be implemented to prevent contracting malaria when travelling to an infested area. (2)

1.5.4 Give TWO symptoms of malaria. (2)
(8)

TOTAL SECTION A: 50

SECTION B

QUESTION 2

2.1 The table below shows the population size of mice in a 100 hectare maize field over a 10 year period.

YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
POPULATION	25	35	75	120	130	120	86	116	110	110

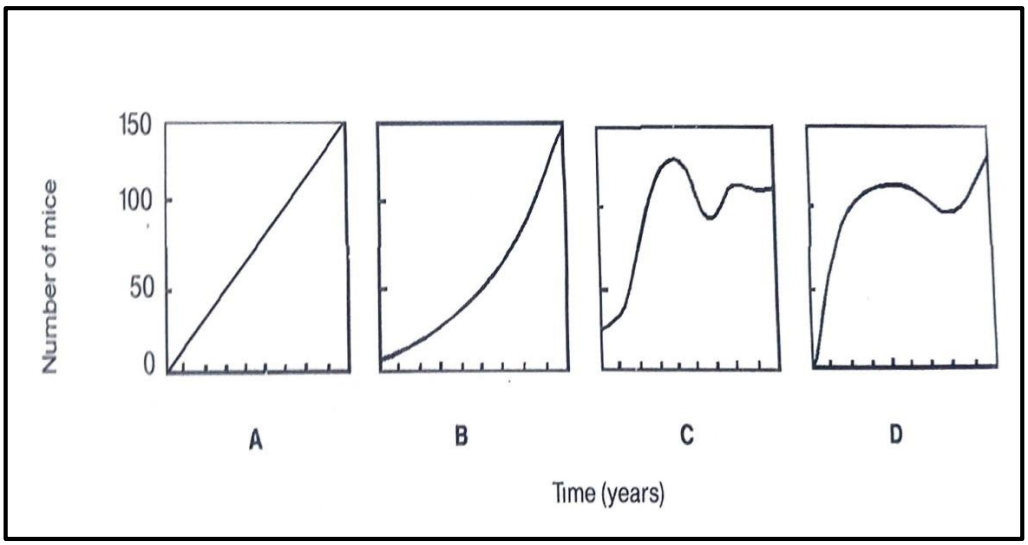
2.1.1 What is meant by the term *population*? (3)

2.1.2 Why was the rate of increase fairly slow from 2015 to 2016? (2)

2.1.3 Why did the numbers increase fast from 2016 to 2019? (2)

2.1.4 Draw a line graph representing the population size of mice from 2015 to 2019. (6)

QUESTION 2.1.5 to 2.1.7 are based on the diagram below.

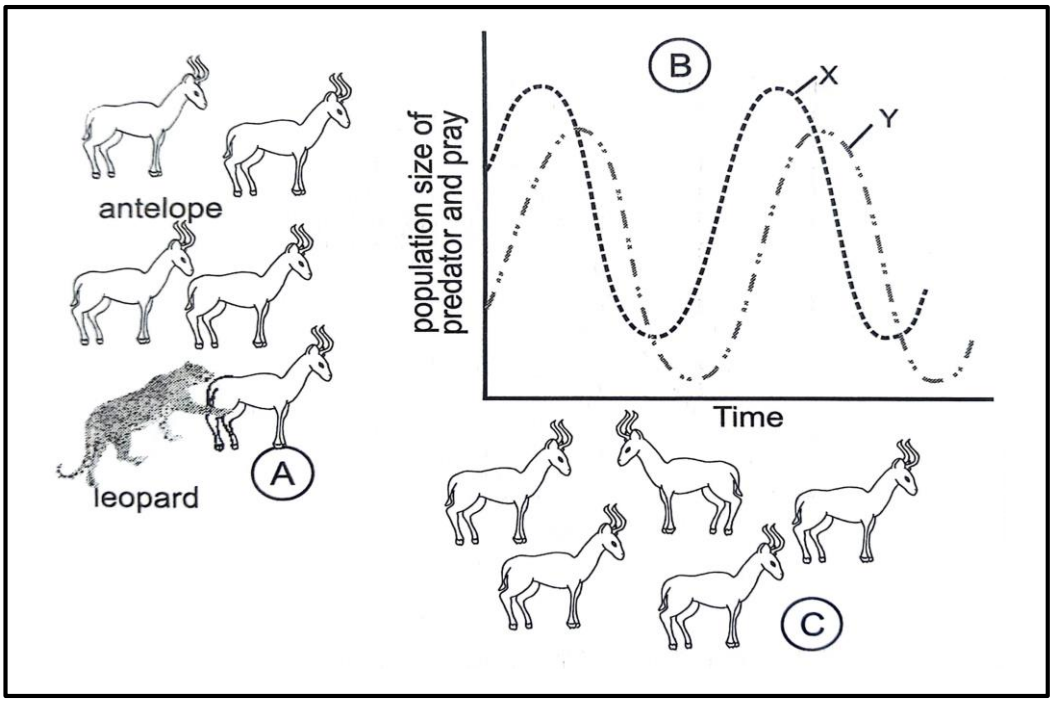


2.1.5 Which graph above represent the population of mice? (1)

2.1.6 What is the carrying capacity of the maize field? (1)

2.1.7 Give a reason for your answer in QUESTION 2.1.6? (2)
(17)

2.2 The illustration below shows the interaction between two animals.



2.2.1 What type of interaction is indicated by illustration **A**? (1)

2.2.2 Explain a reason to your answer in QUESTION 2.2.1. (2)

2.2.3 What effect will this interaction have on the size of the antelope population? (1)

2.2.4 With reference to illustration **B**, which graph represent:

(a) the antelope population? (1)

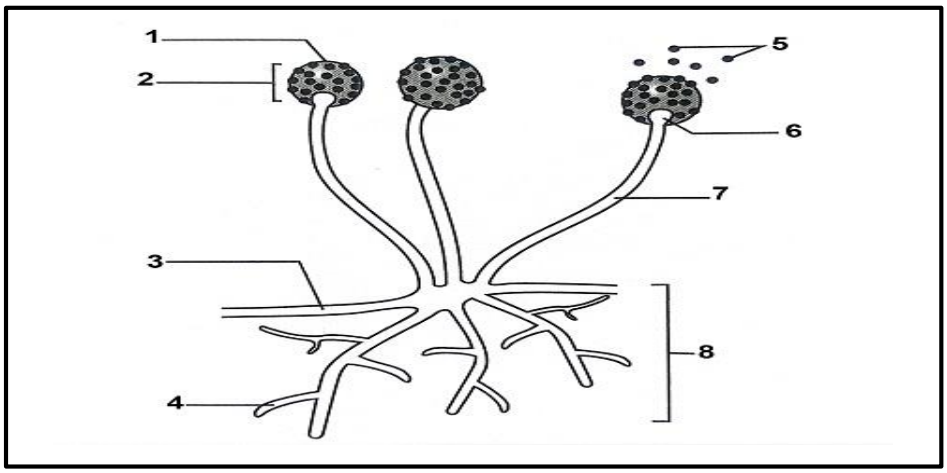
(b) the leopard population? (1)

2.2.5 Name and explain the interaction which will emerge at **C**. (2)

2.2.6 What effect will a density-independent factor have on the size of the antelope population? (1)

2.2.7 Give ONE example of such a factor which were mention in QUESTION 2.2.6. (1)
(10)

2.3 Study the diagram below.



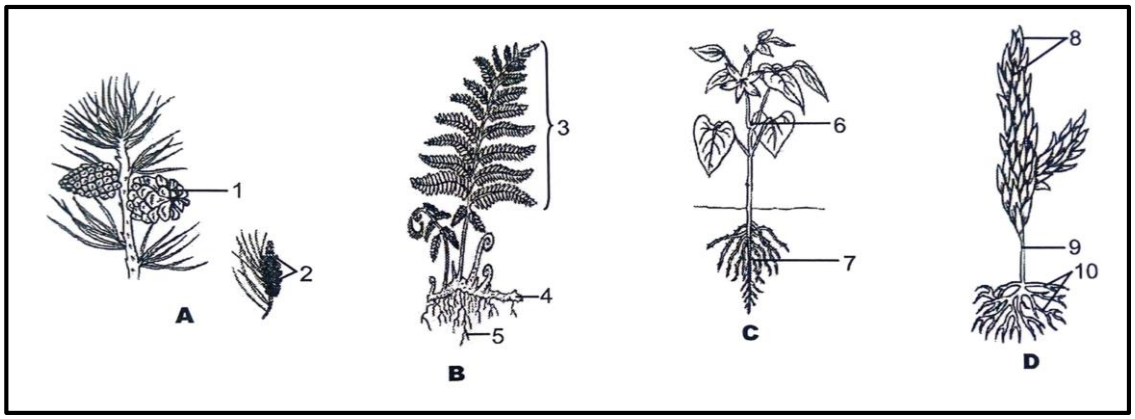
2.3.1 Name the parts labelled **3, 4** and **6**. (3)

2.3.2 State ONE function of part **1, 4** and **7** respectively. (3)

2.3.3 Name and describe the type of nutrition in this plant. (2)

2.3.4 Tabulate TWO differences between fungi and bacteria. (5)
(13)

2.4 Study the diagrams below that represent biodiversity of plants.



2.4.1 Identify the plant groups for **A** and **C**. (2)

2.4.2 Identify parts labelled **1, 3** and **4**. (3)

2.4.3 Give the name of the structure that developed from a germinated spore **B.** (1)

2.4.4 Draw a labelled diagram of the generation that lives semi-parasitically on plant **D**. (4)
(10)
[50]

QUESTION 3

3.1 Study the extract below on elephant culling.

TOO HUNGRY, TOO DESTRUCTIVE, TOO MANY: SOUTH AFRICA TO BEGIN ELEPHANT CULL

An elephant herd at the Kruger National Park has 20 000 elephants, 5 000 more than is sustainable. Ecologists say the animals' huge appetites and fondness for 'habitat re-engineering' – reducing forests to flatland by uprooting trees and trampling plants – is the main problem.

Culling of the excess elephants is seen as an advantage in that it generates revenue for the communities from the sale of ivory and other elephant products. It will also provide meat to the local communities. Alternatives to culling include contraception and relocation of entire elephant families. The removal of fences between the Kruger National Park and parks in neighbouring Mozambique will eventually help with migration into less congested areas.

The 2004 figure of 8 000 elephant increased to 20 000 in 2014 and it is expected to reach 34 000 by 2026.

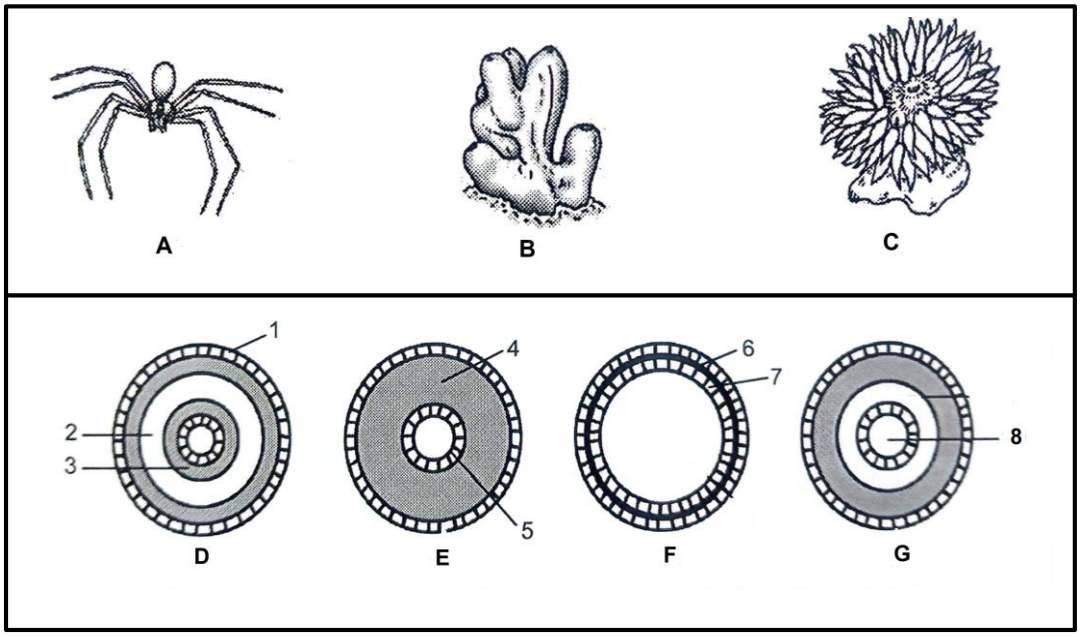
3.1.1 Give the main reason mentioned above in support of the culling of elephants. (1)

3.1.2 Name THREE alternatives to culling proposed above. (3)

3.1.3 Predict the likely elephant population number by 2040 if the population is allowed to keep growing at the same rate. (2)

3.1.4 Suggest how the community can benefit from the culling of elephants. (2)
(8)

3.2 Study the organisms and diagrams represented below.



3.2.1 Identify the type of symmetry illustrated in **A, B** and **C**. (3)

3.2.2 Identify the parts **2, 3, 6** and **8.** (4)

3.2.3 Which diagram(s) according to the number of germ layers represent:

(a) diploblastic (1)

(b) triploblastic (1)

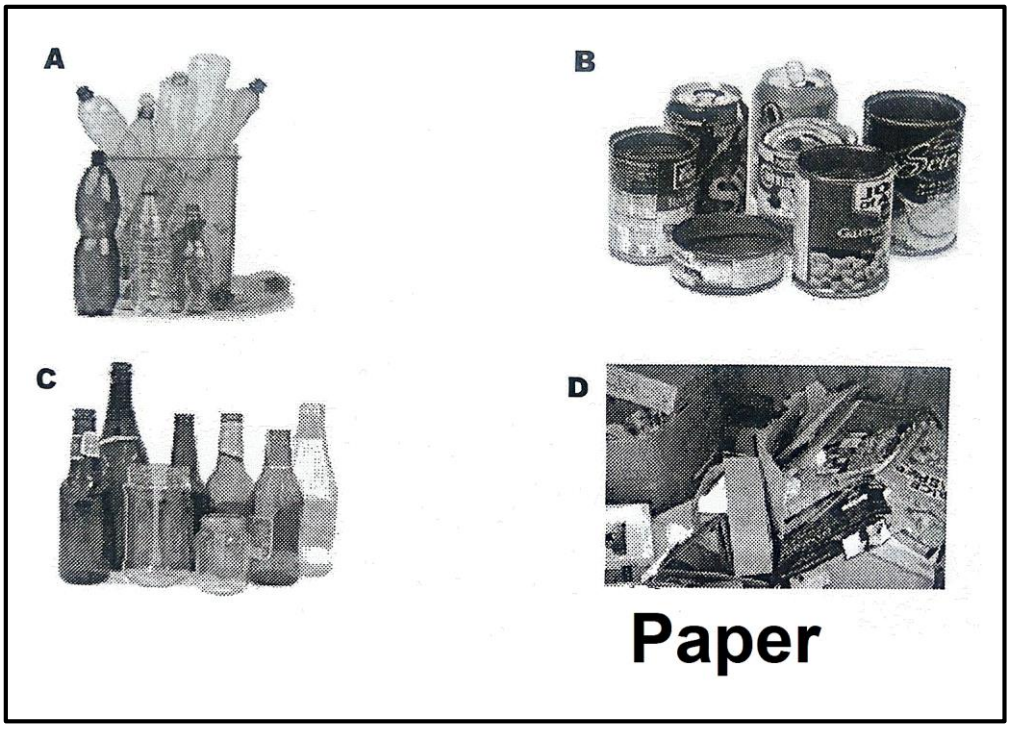
(c) acoelomate (1)

(d) coelomate (1)

3.2.4 Which ONE of the diagrams **D, E, F or G** represents the most advanced and complex animal? (1)

3.2.5 Give a reason to your answer in QUESTION 3.2.4. (2)
(14)

3.3 Study the recycle products shown below.



3.3.1 Name THREE advantages of recycling product **D**. (3)

3.3.2 In which category of household waste will **A** and **B** be classified? (1)

3.3.3 Products **C** is 100% recyclable, but not biodegradable.
What does this mean? (3)

3.3.4 Name and explain the term used to classify product **A** and **C**. (2)
(9)

3.4 Read the extract below on GMO and food security.

GMO AND FOOD SECURITY

The multinational companies controlling agricultural economics:

- impoverish farmers who are forced to buy seed, pesticides, fertilisers and even farming equipment from them at high costs.
- do not allow independent research, in order to protect their profits.
- control most GMO seed rights with patents. Farmers who traditionally saved their seed for replanting or exchanging with other farmers are no longer allowed to do so. The control and ownership of seeds - in the case of GM maize, GM soya and GM cotton in South Africa - passes entirely to multinational corporations that hold the patents, such as Monsanto (German and American) and Syngenta (American and Chinese). This undermines farmers' rights, and places control outside the country.
- the high costs of genetic modification increase food prices which negatively impacts food security.
- most South Africans are unaware that some of their staple foods are genetically modified.

[Redacted from: March Against Syngenta: Monsanto's Swiss Twin Unmasked by MultiWatch, Schwabe AG, 2016]

3.4.1 Name TWO genetically modified crops grown in South Africa. (2)

3.4.2 Explain TWO ways in which genetically modified seed companies will negatively impact on impoverished farmers. (2)

3.4.3 The extract above describes only the negative impacts of genetically modified crops. Describe how food security is positively affected by genetic modification of crops. (3)

3.4.4 How do GM seeds affect the gene pool and biodiversity? (2)

3.4.5 Describe what is meant by the following terms:

(a) Genetically modified organism (GMO) (2)

(b) Food security (2)
(13)

3.5 A population of insects on a semi-desert area are likely to be wingless because flying is dangerous for them in an area with strong winds.

Part of the semi-desert was once covered with tall trees, over years there has been deforestation in some area of semi-desert. In this semi-desert insect called robberflies, have changed. Some have wings and some do not have wings, depending on the area where they are found.

Scientist wanted to determine the relationship between the presence of tall trees and wings on the robberflies.

- they selected eight locations, of which four had tall trees and four were without trees
- using a specialised net, they collected thousand of robberflies in each location
- the sample were labelled according to the area of collection
- these samples were all collected in the morning during summer
- the number of robberflies with wings and without wings at each location was counted and recorded.

3.5.1 State the aim of this investigation. (2)

3.5.2 Identify the:

(a) independent variable (1)

(b) dependent variable (1)

3.5.3 State TWO ways in which the reliability of this investigation was ensured. (2)
(6)
[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150

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