Candidate Name | Centre Number | Candidate Number

ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

BIOLOGY

PAPER 2 Theory Structured

4025/2

NOVEMBER 2019 SESSION

2 hours

Candidates answer on the question paper.

Additional materials:

Electronic calculator
Pencil (type HB is recommended)

Allow candidates 5 minutes to count pages before the examination.

TIME: 2 hours

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page and your centre number and candidate number on the top right hand corner of every page of this paper.

Check that all the pages are in the booklet and ask the invigilator for a replacement if there are duplicate or missing pages.

Section A
Answer **all** questions.
Write your answers in the spaces provided on the question paper.

Section B
Answer any **four** questions.
Write your answers in the spaces provided on the question paper.

INFORMATION FOR CANDIDATES

The intended number of marks is given in brackets [ ] at the end of each question or part question.

Copyright: Zimbabwe School Examinations Council, N2019.

[Turn over

©ZIMSEC N2019

Section A

Answer **all** questions in this section

1. **(a)** **(i)** **Fig. 1.1** illustrates the lock and key hypothesis of enzyme activity.

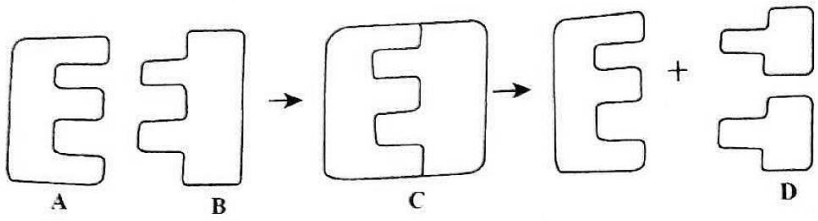


Fig. 1.1

Identify, with a reason, **C** and **D**.

C.....

reason.....

D.....

reason.....

[4]

(ii) State the type of reaction shown.

.....

.....

[1]

(iii) Suggest the property of enzymes that allows formation of **C**.

.....

[1]

(iv) Explain why enzymes are efficient in small quantities.

.....

[1]

(b) (i) Write a word equation for the digestion of fats.

[2]

(ii) State any **one** reagent used when testing for fats.

.....

[1]

[Total: 10]

2. (a) Define the term *geotropism*.

.....

.....

[2]

(b) Describe the effect of gravity stimuli to a horizontal

(i) root of a plant,

.....

.....

.....

.....

[3]

(ii) shoot of a plant.

.....

.....

.....

[2]

(c) Explain the importance of geotropism to plants.

.....

.....

.....

.....

[3]

[Total: 10]

4

3. (a) **Fig. 3.1** shows the structure of a human ovum.

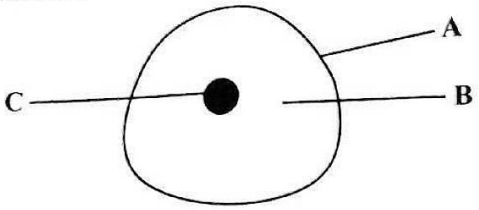


Fig. 3.1

Identify parts **A**, **B** and **C**.

A .....

B .....

C .....

[3]

(b) Relate the structure of an ovum to its function.

.....

.....

.....

.....

[4]

(c) State any **three** differences between an ovum and a palisade cell.

.....

.....

.....

.....

[3]

[Total: 10]

4. **(a)** **(i)** Name the causative agent of bilharzia.

.....

[1]

(ii) State the mode of transmission of bilharzia.

.....

[1]

(b) Describe the signs and symptoms of bilharzia.

.....

.....

.....

.....

[4]

(c) Outline measures taken to reduce the spread of bilharzia.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[4]

[Total: 10]

5. **(a)** **(i)** **Fig. 5.1(a)** and **Fig. 5.1(b)** show the structure of a virus and a bacterium respectively.

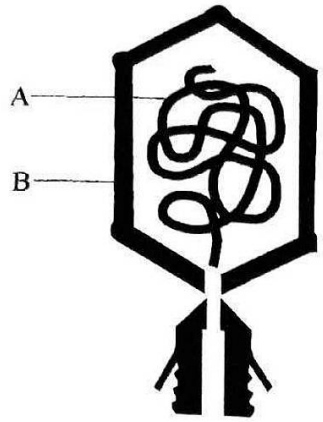


Fig. 5.1(a)

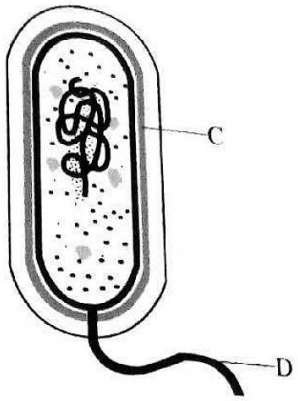


Fig. 5.1(b)

Identify parts A, B, C and D.

A .....

B .....

C .....

D .....

[4]

(ii) Name the major chemical constituent of part C.

.....

[1]

(iii) Give a function for part D.

.....

[1]

(b) Explain why viruses **do not** belong to any kingdom.

.....

.....

.....

.....

.....

[4]

[Total: 10]

(a) **(i)** **Fig. 6.1** is a drawing of an organism found in the soil.

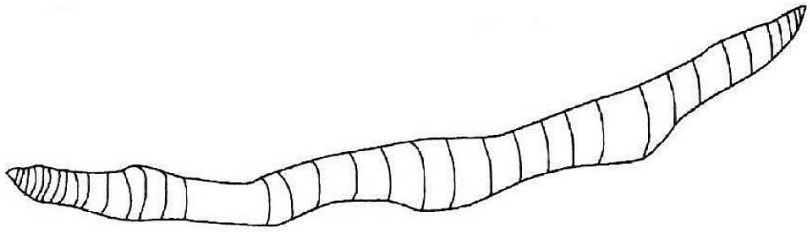


Fig. 6.1

Identify the organism.

.....

[1]

(ii) State any **three** roles of the organism in the soil.

1.....

2.....

3.....

[3]

(iii) State any **two** other biological components of soil.

1.....

2.....

[2]

(b) Suggest solutions to soil erosion at an abandoned mine site

.....

.....

.....

.....

.....

[Total]

Section B

Answer any **four** questions from this section.

7. **(a)** Describe the differences between plant cells and animal cells.

.....

.....

.....

.....

.....

.....

[4]

(b) Relate the structure of the sperm cell to its function.

.....

.....

.....

.....

.....

.....

.....

.....

[6]

[Total: 10]

8. **(a)** Describe the importance of vegetative propagation to a market gardener.

.....

.....

.....

.....

.....

.....

.....

.....

[6]

(b) Explain the economic importance of plants to humans.

.....

.....

.....

.....

.....

.....

[4]

[Total: 10]

9. **(a)** Outline the functions of the liver.

.....

.....

.....

.....

.....

.....

.....

.....

[6]

(b) Explain the effect of blockage of the bile duct on lipid digestion.

.....

.....

.....

.....

.....

.....

[4]

[Total: 10]

10. (a) Describe how insulin is produced by recombinant DNA technology.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[6]

(b) Explain the benefits of recombinant DNA technology.

.....

.....

.....

.....

.....

.....

[4]

[Total: 10]

11. **(a)** Differentiate, using named examples, between continuous variation and discontinuous variation.

.....

.....

.....

.....

.....

.....

.....

.....

[6]

(b) Explain how variation leads to natural selection.

.....

.....

.....

.....

.....

.....

[4]

[Total: 10]

12. (a) Describe the role of micro organisms in the nitrogen cycle.

.....

.....

.....

.....

.....

.....

.....

.....

[6]

(b) Compare natural ecosystems and artificial ecosystems.

.....

.....

.....

.....

.....

.....

[4]

[Total: 10]