Surname	Forename(s)	Centre Number	Candidate Number

For Performance Measurement

ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

BIOLOGY 4025/2

PAPER 2 Theory

SPECIMEN PAPER 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.

This booklet should not be punched or stapled and pages should not be removed.

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

This question paper consists of 14 printed pages and 2 blank pages.

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Section A

Answer **all** questions in this section.

1. **Fig.1.1** shows the action of an enzyme on a substrate.

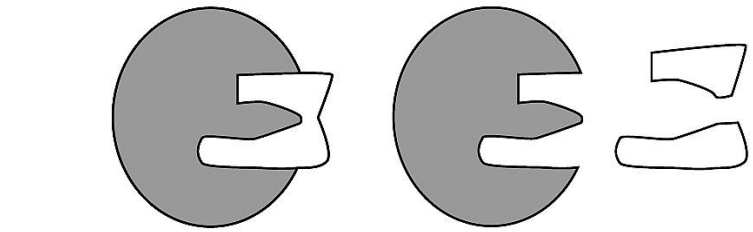


Fig. 1.1

(a) Define the term enzyme.

_____

_____ [2]

(b) **(i)** Identify **two** properties of enzymes that are being demonstrated.

1._____

2._____ [2]

(ii) State any example of an enzyme and a substrate that could be represented by **Fig 1.1**.

Enzyme_____

Substrate_____ [2]

(c) Identify the deficient mineral in plants with the following leaf features:

Chlorotic leaves_____

Purplish leaves_____

Leaves with burnt or brown margins_____

_____ [3]

(d) State an effect of mineral deficiency on plant productivity

_____ [1]

[Total 10]

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

_____

_____ [2]

(b) Explain the importance of transpiration to plants.

_____

_____

_____ [3]

(c) Describe the distribution of stomata in dicotyledonous leaves.

_____

_____

_____ [2]

(d) Distinguish between monocotyledonous and dicotyledonous plants.

monocotyledons	cotyledons

[3]
[Total: 10]

3 **(a)** **Fig 3.1** shows parts of the respiratory system.

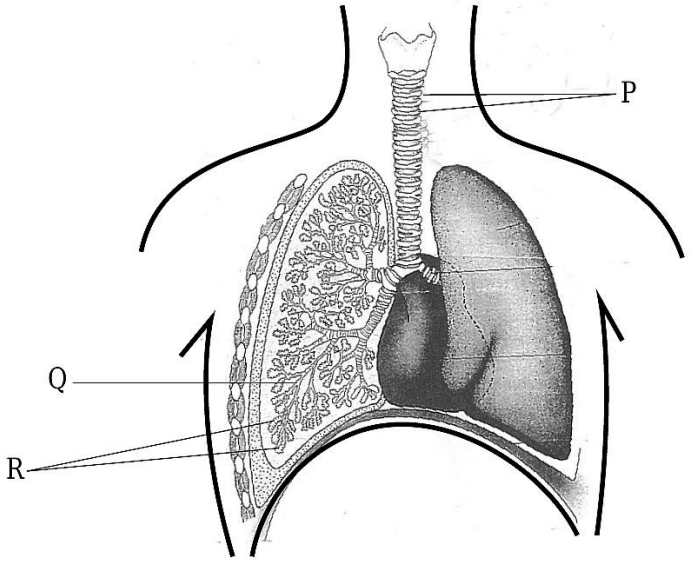


Fig 3.1

(i) Identify the parts labelled P.Q and R

P_____

Q _____

R _____ [3]

(ii) State the functions of parts labelled:

P _____

_____

_____

_____

R _____

_____

_____ [3]

(b) State **four** effects of smoking on the respiratory system.

_____

_____

_____

_____

_____

_____

_____

_____

_____ [4]

[Total:10]

4 **Fig 4.1** shows a longitudinal section through a maize grain.

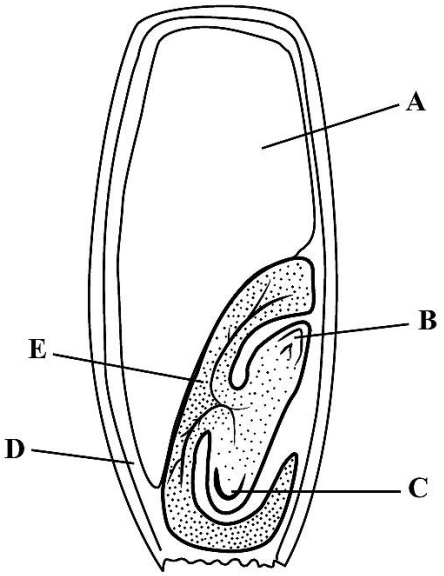


Fig 4.1

(a) State which **one** of the part(s) **A, B, C, D** and/or **E** form(s) the plant embryo.

_____ [1]

(b) Describe the activities of enzymes in **A** and **D** during germination.

_____

_____

_____

_____

_____ [4]

(c) State **two** differences between a maize seed and a bean seed.

1 _____

2 _____ [2]

(d) Suggest why certain seeds may not germinate if sown:

(i) during winter periods

_____

_____ [2]

(ii) water logged soils

_____

_____ [1]

[Total 10]

5 **Fig 5.1** shows a developing mammalian fetus and a part of the uterus wall.

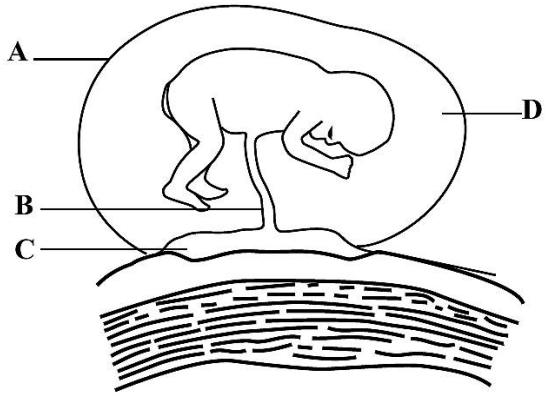


Fig 5.1

(a) Name the parts labelled **A**, **B**, and **C**.

A _____

B _____

C _____ **[**3]

(b) State any **three** functions of **D** during pregnancy.

1_____

2_____

3_____ [3]

(c) Describe the action of **D** during birth.

_____

_____ [1]

(d) Explain why smoking in pregnant mothers may result in miscarriages.

_____

_____

_____

_____ [3]

[Total:10]

6 **(a)** Distinguish between the terms:

(i) dominant allele and recessive allele.

_____

_____

_____ [2]

(ii) phenotype and genotype.

_____

_____ [2]

(iii) homozygous and heterozygous.

_____

_____

_____ [2]

(b) Explain how a child with Down's Syndrome may be born to normal parents.

_____

_____

_____

_____

_____

_____ [4]

[Total:10]

Section B

Answer any **four** questions.

7 **(a)** Describe how raw materials for photosynthesis reach the palisade layer from their source.

_____

_____

_____

_____

_____

_____ [6]

(b) Explain how the dicotyledonous leaf is adapted for photosynthesis.

_____

_____

_____

_____

_____ [4]

[Total:10]

8 **(a)** Explain how eating chocolates and sweets contributes to tooth decay.

_____

_____

_____

_____

_____ [5]

(b) Describe how dental decay can be prevented.

_____

_____

_____

_____

_____

_____

_____ [5]

[Total: 10]

9 Outline the role of the liver in the metabolism of the following products:

(a) Amino Acids

_____

_____

_____

_____

_____ [4]

(b) Sugars/ Glucose

_____

_____

_____

_____

_____

_____ [4]

(c) Fatty Acids and Glycerol

_____

_____

_____

_____

_____

_____ [2]

[Total 10]

10 **(a)** Distinguish between pulmonary circulation and systemic circulation.

_____

_____

_____

_____

_____ [4]

(b) Describe the structure of the mammalian heart.

_____

_____

_____

_____

_____

_____

_____

_____ [6]

[Total:10]

11 Describe changes which occur during the menstrual cycle phases to the human:

(a) uterus lining.

_____

_____

_____

_____

_____

_____ [6]

(b) ovaries

_____

_____

_____

_____ [4]

[Total:10]

12 **(a)** Outline measures that could be taken to conserve elephants in Zimbabwe.

_____

_____

_____

_____

_____

_____

_____

_____ [6]

(b) Explain the role of decomposers in the nitrogen cycle.

_____

_____

_____

_____

_____

_____ [4]

[Total:10]

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