

Surname

Forename(s)

Centre Number

Candidate Number



For Performance Measurement

**ZIMBABWE SCHOOL EXAMINATIONS COUNCIL**  
**General Certificate of Education Ordinary Level**

**BIOLOGY**  
**PAPER 2 Theory**

**4025/2**

**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.

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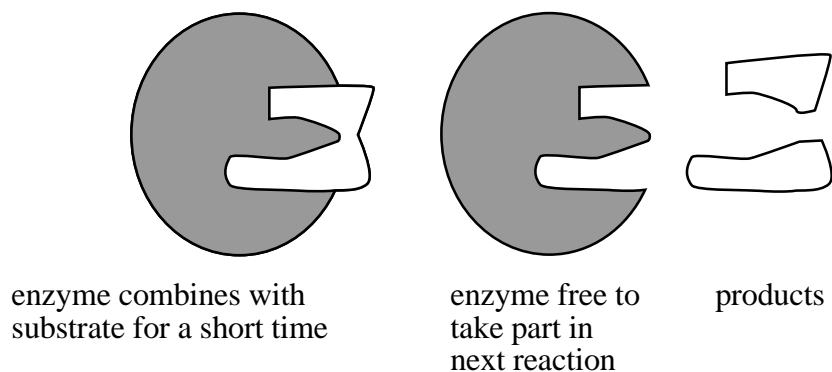
**This question paper consists of 14 printed pages and 2 blank pages.**

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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.

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[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]

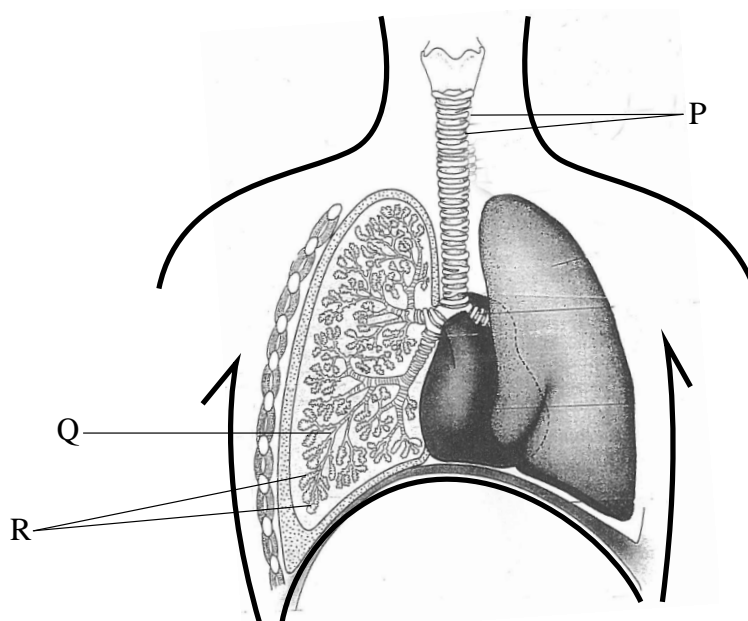
- (d) Distinguish between monocotyledonous and dicotyledonous plants.

monocotyledons	dicotyledons

[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.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

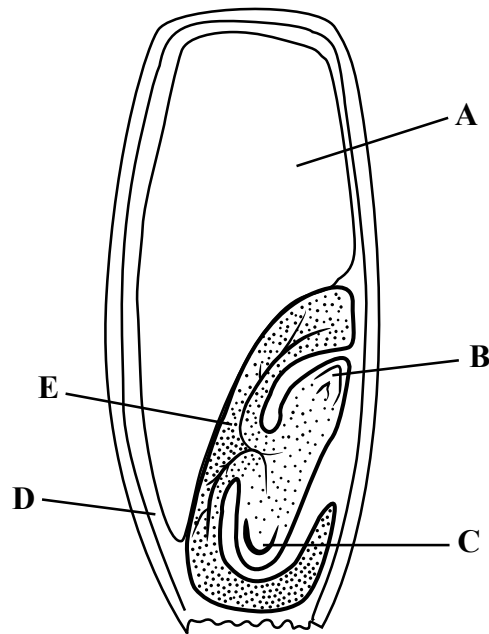
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[4]

[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:

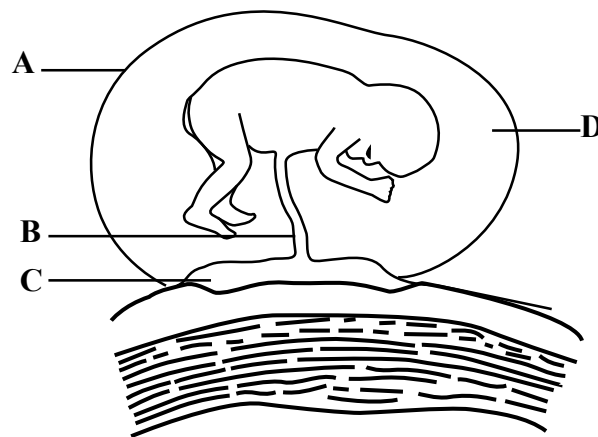
(i) during winter periods

\_\_\_\_\_  
 \_\_\_\_\_ [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*.

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\_\_\_\_\_ [2]



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

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[4]

[Total:10]

**Section B**

*Answer any **four** questions.*

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

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[6]

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

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[4]

[Total:10]

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

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[5]

**(b)** Describe how dental decay can be prevented.

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[5]

[Total: 10]

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

**(a)** Amino Acids

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[4]

**(b)** Sugars/ Glucose

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[4]

(c) Fatty Acids and Glycerol

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[2]

[Total 10]

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

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[4]

(b) Describe the structure of the mammalian heart.

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[6]

[Total:10]

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

**(a)** uterus lining.

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[6]

**(b)** ovaries

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[4]

[Total:10]

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

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[6]

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

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[4]

[Total:10]

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