

Candidate Name _____

Centre Number				Candidate Number									

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology

5090/2

Paper 2 Theory

Wednesday

26 OCTOBER 2016

Additional Information:
Answer Booklet

Time 1 hour 45 minutes

Instructions to Candidates

Write your name, centre number and candidate number in the spaces at the top of this page and on the **Answer Booklet** used.
There are **ten** questions in this paper.

Section A

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Section B

Answer any **three** questions.

Write your answers in the Answer Booklet provided.

At the end of the examination:

- 1 fasten the Answer Booklet used securely to the question paper,
- 2 enter the numbers of the Section B questions you have answered in the grid on the bottom right side corner.

Information for candidates

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

You are advised to spend no longer than one hour on Section A and no longer than 45 minutes on Section B.

Cell phones are not allowed in the examination room.

FOR EXAMINER'S USE	
Section A	
Section B	
Total	

Section A Short answer questions [44 marks]

Answer all the questions in the spaces provided on the question paper.

1 Figure 1.1. shows an animal cell as seen under an electron microscope.

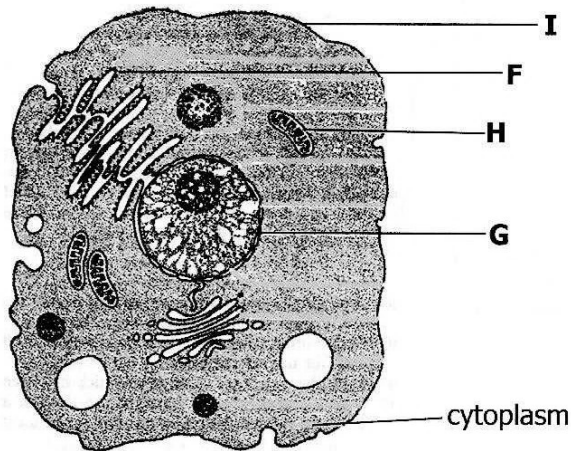


Figure 1.1

(a) Identify the labelled parts **F** and **G**.

Part **F**

Part **G** [2]

(b) Explain the functions of the parts labelled **H** and **I**.

H

.....

I

..... [4]

(c) Suggest **two** cell parts which would be present in **Figure 1.1** if it was a plant cell.

1.....

2..... [2]

Total 8 marks

- 2 **Figure 2.1.** shows the effect of pH on the rate of enzyme catalysed reactions **K** and **M**.

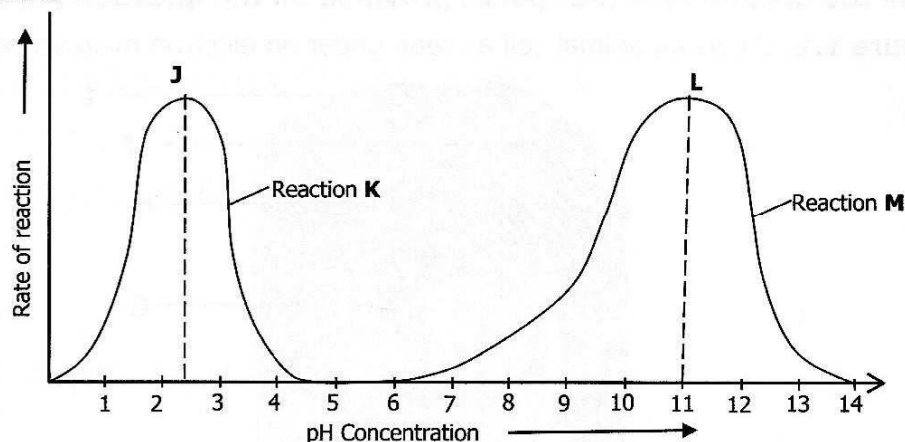


Figure 2.1

- (a) What term is given to pH at **J** and **L**?

..... [1]

- (b) Explain why the rate of reactions **K** and **M** goes down after point **J** and **L** respectively.

..... [2]

- (c) Name the regions of the alimentary canal where reactions **K** and **M** take place?

K.....

M..... [2]

- (d) (i) Suggest **one** enzyme which can catalyse reaction **M**.

..... [1]

- (ii) State **one** food nutrient which can be catalysed in reaction **K**.

..... [1]

- (e) State **two** factors other than pH which affect enzyme activity.

1.....

2..... [2]

Total 9 marks

- 3 **Figure 3.1.** shows a cross-section through a stem of a plant which had been previously dipped in a red dye for 6 hours.

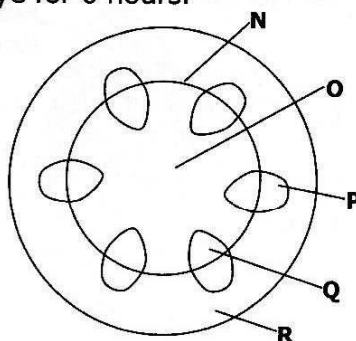


Figure 3.1

- (a) (i) Identify the parts labelled **N**, **P** and **Q**.
- N**
- P**.....
- Q** [3]
- (ii) Which labelled part in **Figure 3.1** would be stained red?
- [1]
- (iii) Give a reason for your answer in (a)(ii) above.
-
- [1]
- (b) (i) Suggest **three** factors that would increase the rate of movement of the dye in the stem when it is dipped in the red dye.
-
-
- [3]
- (ii) Name the process that will cause the movement of the red dye in the stem.
- [1]

Total 9 marks

4 **Figure 4.1.** shows a certain type of flower.

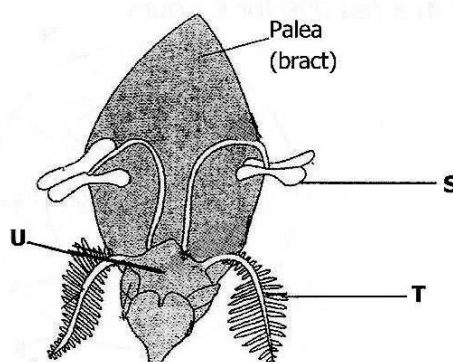


Figure 4.1

(a) Identify the parts labelled **S**, **T** and **U**.

S

T

U [3]

(b) (i) Identify the type of pollination that occurs in the flower in **Figure 4.1**.

..... [1]

(ii) Give **two** features from **Figure 4.1** which support your answer in (b)(i) above.

..... [2]

(c) (i) State **one** other type of pollination other than the one mentioned in (b)(i) above.

..... [1]

(ii) Give **two** characteristics of the flower where the type of pollination mentioned in (c)(i) above occurs.

1

2

..... [2]

Total 9 marks

- 5** **Figure 5.1.** below shows pedigree diagrams for two families **A** and **B**, outlining inheritance of a sex-linked disease called haemophilia.

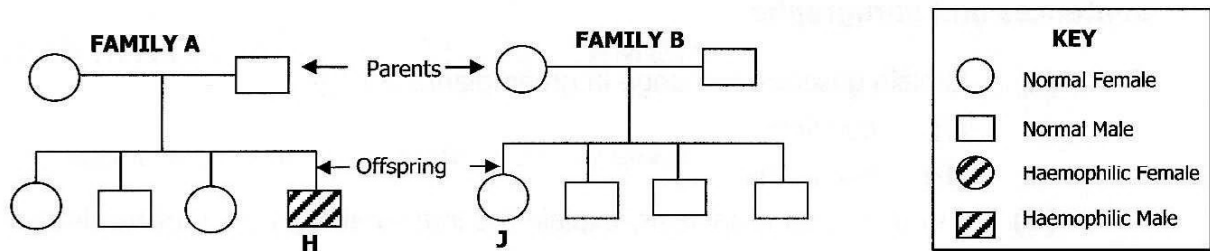


Figure 5.1

- (a) (i)** From **Figure 5.1**, which family has a parent who is a carrier for haemophilia?

..... [1]

- (ii)** Give a reason for your answer in **(a)(i)** above.

..... [1]

- (b) (i)** Using the symbols X^H and X^h , state the genotypes for offspring **H** and **J**, if **J** is a carrier for haemophilia.

H

J [2]

- (ii)** Using a genetic diagram, show whether the offspring would be haemophilic or normal when **H** and **J** are crossed.

Section B Essay questions[36 marks]

Answer any three questions from this section. All answers must be in complete sentences and paragraphs.

- 6 (a) Explain gaseous exchange in green plants during:
- (i) day time. [4]
 - (ii) night time. [4]
- (b) Using **named** organisms, explain the industrial application of respiration. [4]
- (c) Describe how gum disease is brought about. [4]

Total 12 marks

- 7 (a) (i) Describe the structure and functions of endocrine glands. [3]
- (ii) Explain the difference between the adrenal gland and the salivary gland. [3]
- (b) Explain the function of the following hormones in the body:
- (i) Insulin [3]
 - (ii) Antidiuretic hormone (ADH) [3]

Total 12 marks

- 8 (a) Explain how HIV can be transmitted from one person to another. [6]
- (b) (i) Explain the causes of stigma to people living with HIV and AIDS. [4]
- (ii) Describe ways of reducing stigma. [2]

Total 12 marks

- 9 (a) State the parts of a synovial joint and explain their functions. [6]
- (b) Explain why a bone is considered a living tissue. [3]
- (c) Explain the action of antagonistic muscles of the eye when one moves from a dark room into bright light. [3]

Total 12 marks

- 10 (a) Describe factors that make soil fertile. [4]
- (b) Explain the causes of loss of soil fertility. [4]
- (c) Explain methods of improving and retaining soil fertility. [4]

Total 12 marks



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