# NYAMBARIA HIGH SCHOOL

# END OF YEAR EXAMS

**Paving Way For Kenya Certificate of Secondary Education Success**

Name …….. Admission no…….

Candidate's Signature…… Date…….

**FORM 3**

**BIOLOGY**

**PAPER 2**

**TIME: 2Hours**

## INSTRUCTIONS

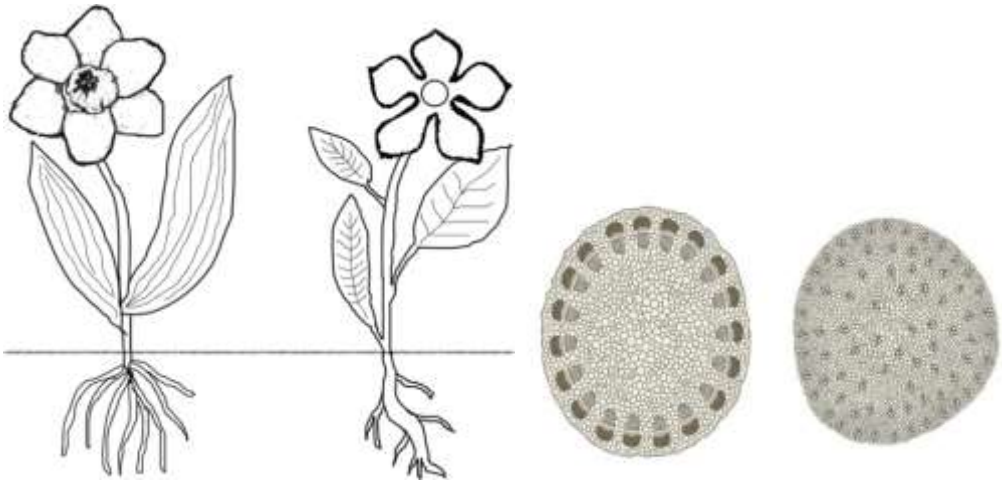
1. This paper has **TWO** sections: **A** and **B**
2. **All** Questions in Section **A** are **Compulsory**
3. Question **6** is Compulsory
4. Choose Either Question 7 **or** 8
5. Write your Answers in the Spaces Provided
6. Wrong Spelling of Technical Terms shall be **Penalized**

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| Section | Question | Max Score | Student's Score |
|---|---|---|---|
| A | 1 | 8 | |
| | 2 | 8 | |
| | 3 | 8 | |
| | 4 | 8 | |
| | 5 | 8 | |
| B | 6 | 20 | |
| | 7 or 8 | 20 | |
| TOTAL SCORE | | 80 | |

## SECTION A (40 MARKS)

1. The diagrams shown below represent two different plants and sections of tissues obtained from them



Plant **A** Plant **B** Section **X** Section **Y**

a) Giving reasons based on the floral parts only, name the classes to which the plants **(4mks**

| Plant | Class | Reason |
|---|---|---|
| **A** | | |
| **B** | | |

b) i) From which organ of the plant were the sections **X** and **Y** obtained? **(1mk**

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ii) Fill in the table below to match the sections and the plants represented above from which the sections were obtained **(2mks**

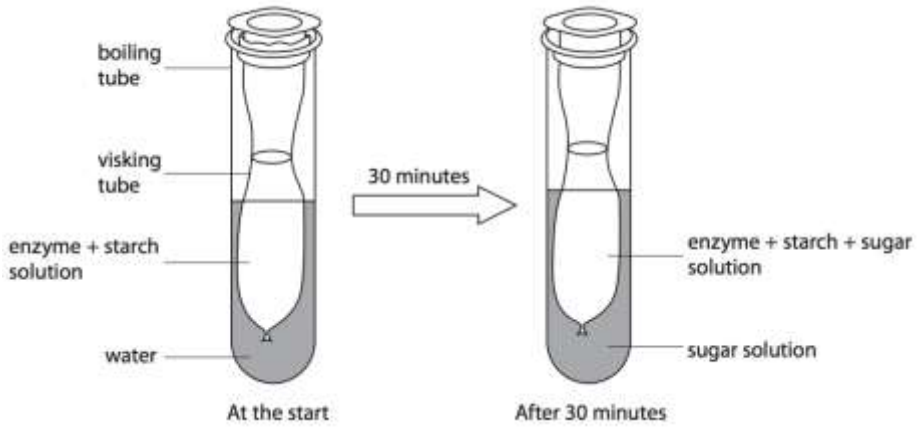
| Section | Plant |
|---|---|
| **X** | |
| **Y** | |

c) Which feature shows that the above plants belong to the Sub-division Angiospermaphyta **(1mk**

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2. The following experimental set up was maintained at 30º for 30 minutes in a water bath for a biology study by Form ones in Kilimo High School.




a) i) Why was the set up maintained at 30º temperature? **(1mk**

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ii) Suggest an identity of the enzyme used in the experiment **(1mk**

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b) i) Account for the observation made after 30 minutes **(3mks**

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ii) Suggest a control experiment for the experiment above **(1mk**

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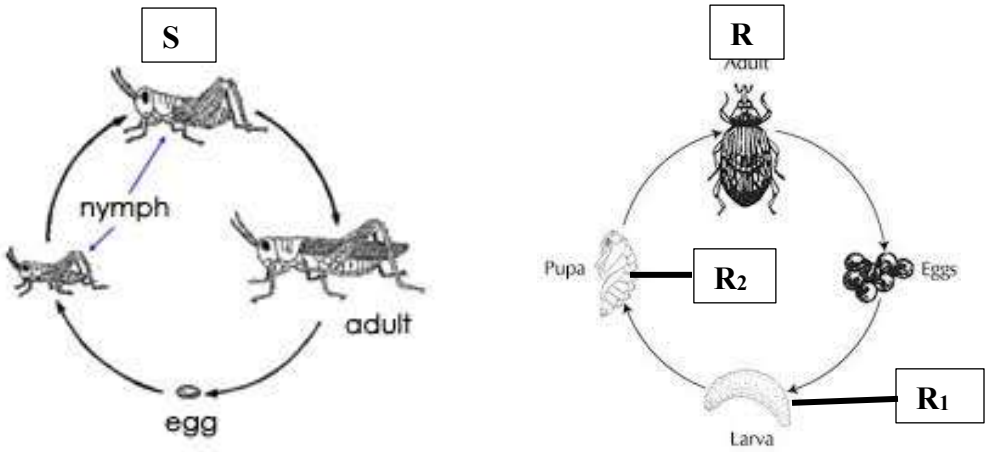
c) Give **TWO** ways of increasing the rate of reaction in the visking tubing in order to have results of the experiment in less than 10 minutes

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……**(2mks**

3. Different types of life cycle of insects are shown below




a) i) Identify the type of lifecycle represented by **S** **(1mk**

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ii) Give **TWO** reasons for your answer in ai) above **(2mks**

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b) Explain the advantage life cycle **R** has over life cycle **S** **(2mks**

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c) State the importance of stage **$R_2$** in the development cycle **R** **(1mk**

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d) i) Explain how development is affected by removal of the prothoracic gland during stage $\mathbf{R_1}$ of life cycle **R** **(2mks**

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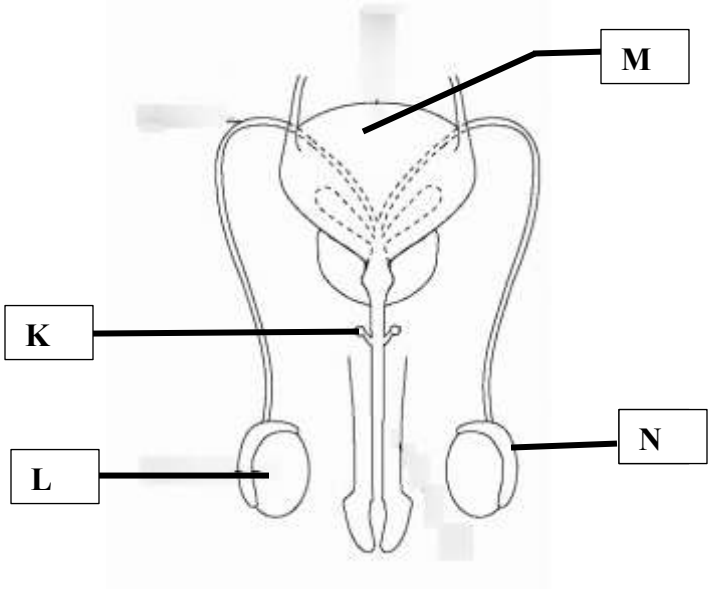
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4. The human male reproductive system and associated glands is shown below




a) State the function of the part labelled **M** **(1mk**

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b) i) Name the part labelled **N** **(1mk**

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ii) How is **N** adapted to its function **(1mk**

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c) What is the significance of part **L** hanging outside the male body? **(2mks**

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d) State the function of secretions from the accessory gland labelled **K**

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……**(1mk**

e) Explain the role of Luteinizing hormone in organ labelled **L**

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……**(2mks**

5. The diagrams shown below are of two organisms associated with human diseases



**P**



**Q**

a) i) Name the vector of parasite labelled **P** **(1mk**

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ii) What is the survival advantage of the close association of the male and female of parasite **P** as shown in the diagram above? **(1mk**

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iii) List **TWO** symptoms of the disease caused by **P** **(2mks**

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b) i) Name the parasite transmitted by the organism labelled **Q** **(1mk**

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ii) Explain why only the female of organism **Q** transmit human diseases **(1mk**

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c) Small fish can be used to control spread of human disease associated with **Q**. Explain……

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**(2mks**

## SECTION B (40 MARKS)

Answer **Question 6** which is **Compulsory;** then Choose either Question **7** or **8**

6. The table below shows data collected from an experiment on photosynthesis

| Concentration of Carbon (IV) Oxide (%) | Rate of Photosynthesis (Arbitrary Units) | |
|---|---|---|
| | Low Light Intensity | High Light Intensity |
| 0.00 | 0 | 0 |
| 0.02 | 20 | 20 |
| 0.04 | 29 | 36 |
| 0.06 | 35 | 51 |
| 0.08 | 39 | 68 |
| 0.10 | 42 | 84 |
| 0.12 | 45 | 89 |
| 0.14 | 46 | 90 |
| 0.16 | 46 | 90 |
| 0.18 | 46 | 90 |

a) i) What was the aim of the experiment? **(1mk**

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ii) State **TWO** factors that should be controlled for the outcome of the experiment above to be reliable **(2mks**

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b) Give **TWO** roles of light during the process of photosynthesis in plants. **(2mks**

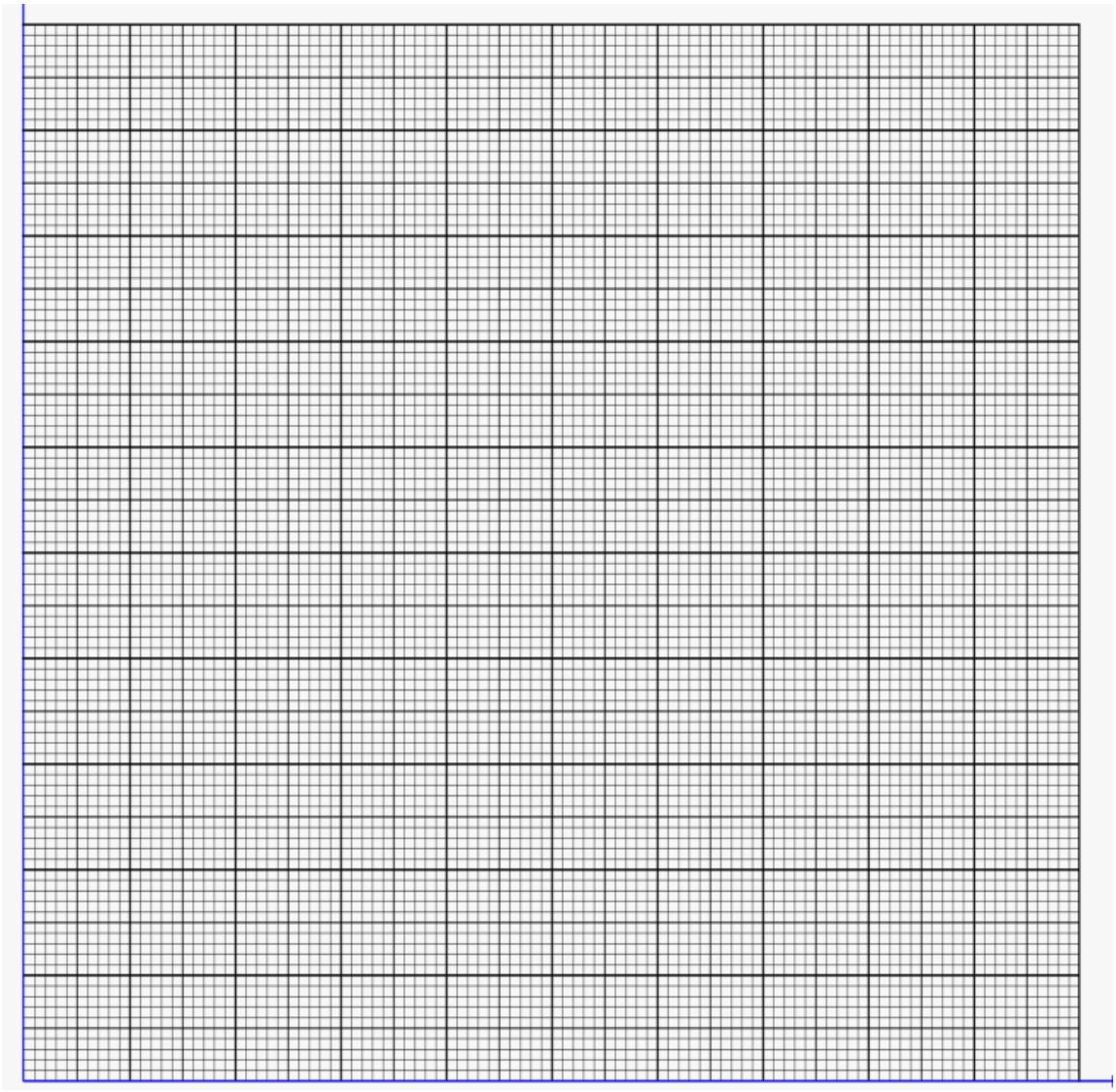
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c) On the same axes, plot a graph of rate of photosynthesis against the concentration of Carbon (IV) Oxide **(8mks**



d) Account for the rate of photosynthesis at the following concentration of Carbon (IV) Oxide:

i) 0.00% **(2mks**

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ii) O.14% to 0.18% **(2mks**

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e) From the graph drawn, determine the optimum concentration of Carbon (IV) Oxide **(1mk**

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f) Give **TWO** ways in which photosynthesis is important to human beings (**2mks**

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7. a) Describe the mechanism of gaseous exchange in a bony fish **(12mks**

b) Describe the adaptations of proximal convoluted tubules to its functions **(8mks**

8. a) Explain how the mammals maintain optimum osmotic pressure of blood. **(12mks**

b) i) Give **TWO** ways in which seed dormancy is important to a seed **(2mks**

ii) Explain how water, oxygen and enzymes are important during seed germination **(6mks**

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