**Name................................................................................................ Index Number........................**

**Student’s Signature..........................**

**231/3**

**BIOLOGY**

**PAPER 3**

**PRACTICAL**

**JUNE, 2017**

**1 ¾ HOURS**

**SUNSHINE SECONDARY SCHOOL**

**Kenya Certificate of Secondary Education**

**BIOLOGY**

**Paper 3**

**Practical**

**TIME: 1 ¾ Hours**

1. You are provided with 6 test tubes, solution C, droppers, a white tile, iodine solution, 0.1% sodium chloride, 1.4% sodium chloride, Benedicts solution, solution A, water bath and labels.
2. Label three tests S, T and U. Into each test-tube, place 3ml of solution C.
3. Put a drop of solution C on a white tile and add a drop of iodine solution.

Record your observation. (1mk)

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C) Add 3 drops of 0.1% sodium chloride solution and 2ml of solution A to test tube T.

To test-tube U add three drops of 1.4% sodium chloride solution and 2ml of solution A. Sodium chloride is a source of sodium ions. Place the test tube S, T and U in a water bath maintained at 37oC for 30 minutes. Using a drop of the solution from each test-tube repeat the procedure in (a) above and spare the rest for the next question. Record your observation in the table below. (3mks)

|  |  |
| --- | --- |
| **Test-tube** | **Observation at the end of experiment** |
| S |  |
| T |  |
| U |  |

1. i) Put 2cm3 of solution from test-tube S in a clean test-tube and add 2cm3 of Benedict solution, shake then heat the mixture to boil. Record your final observations in the table below. Repeat the procedure for solution T and U. (3mks)

|  |  |
| --- | --- |
| **Test-tube** | **Observation at the end of experiment** |
| S |  |
| T |  |
| U |  |

ii) Account for your results in test-tube T and U. (3mks)

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1. Why was the test-tube S included in the experiment? (1mk)

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1. Suggest the identity of solution A. (1mk)

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1. Why was the water bath maintained at 37oC. (1mk)

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1. You are provided with specimen labelled M.
2. Using floral parts and the leaves, classify the plant from which part M was obtained into class and give reasons.

Class ---------------------------------------------------------------------------------------------

Reasons -------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------- (3mks)

1. Suggest the pollinating agent for the specimen M and give reasons.

Pollinating agent ------------------------------------------------------------------------ (1mk)

Reasons -------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------- (2mks)

1. Dissect the flower longitudinally into two equal parts and examine one of the parts using a hand lens.

Describe the following parts

1. Androecium (3mks)

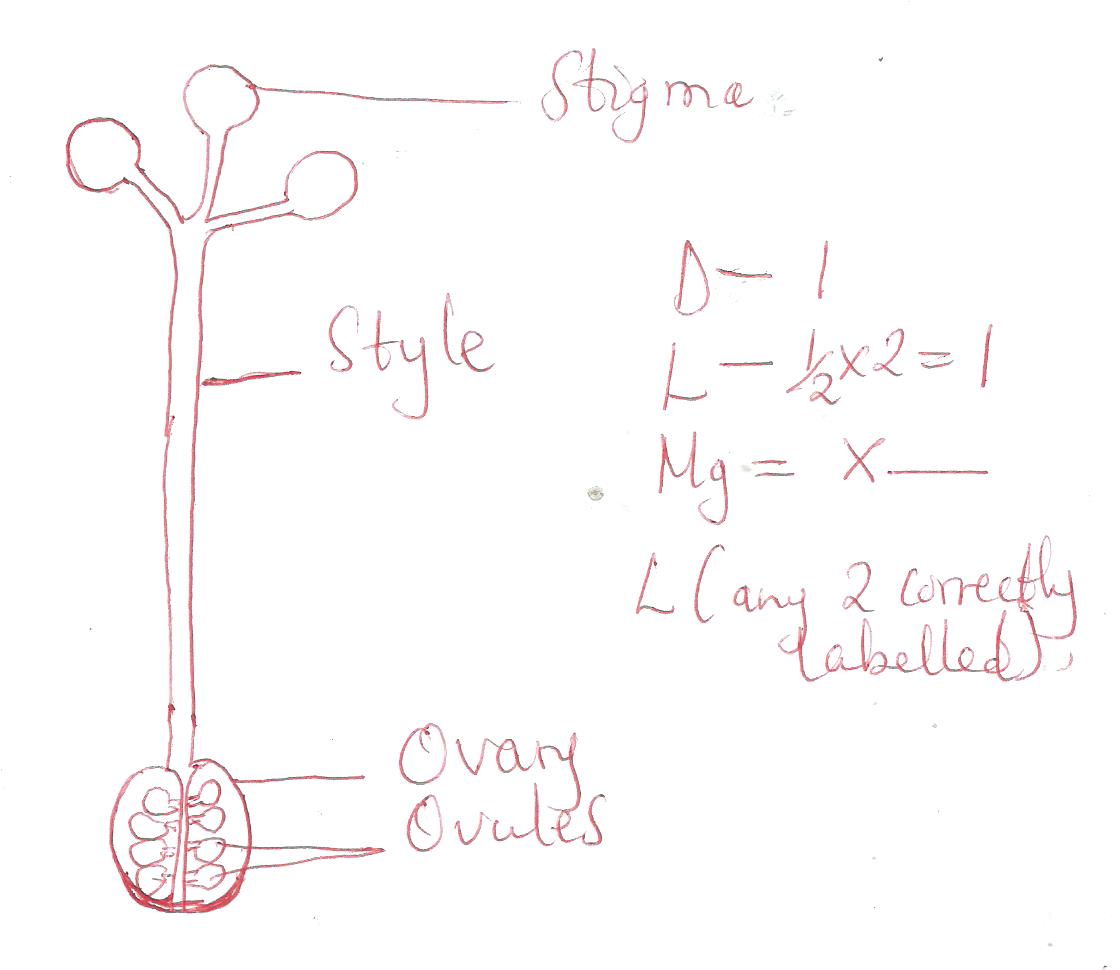
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1. Gynoecium (3mks)

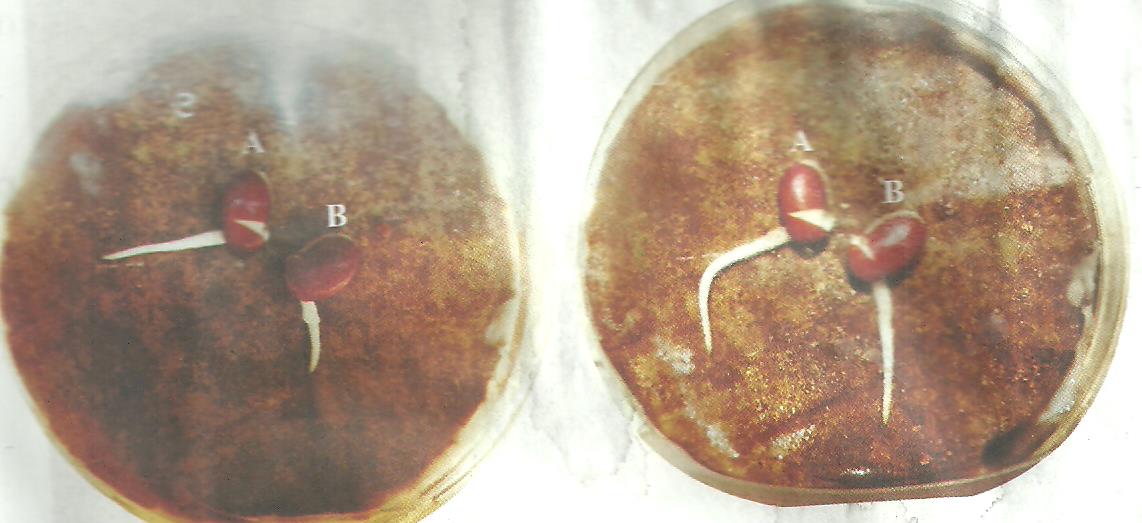
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1. Use the hand lens to observe the pistil closely, draw the pistil only and label the parts.

(3mks)



1. The photographs below show an experiment that was set to investigate a certain response in bean seedlings. Examine them.



At the beginning after 24 hours

1. Which response was being investigated? (1mk)

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1. Account for the observed results for seedling A after 24 hours. (5mks)

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1. Explain why in seedling B the root continued growing straight down. (2mks)

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1. Explain the significance of the response you stated in (a) above to the plant. (2mks)

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b) Below is a photograph of a mammalian bone, labelled Q. 

X

1. Identify the bone (1mk)

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1. State how the bone is adapted to its functions. (3mks)

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1. Name the bone that articulates with the bone Q at part labelled X. (1mk)

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1. Name the specific type of joint formed at this articulation. (1mk)

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**SUNSHINE SECONDARY SCHOOL**

**BIOLOGY PAPER 3**

**CONFIDENTIAL**

**JUNE 2017**

**REQUIREMENTS**

1. Test tubes in a rack 6
2. 0.1% sodium chloride
3. 1.4% sodium chloride
4. 3 droppers
5. White tile
6. Iodine solution
7. Benedicts solution
8. Amylase / diastase enzyme labelled solution A
9. Water bath
10. Four labels
11. Starch solution labelled solution C
12. Thermometer
13. Measuring cylinder
14. A freshly picked hibiscus twig with a regular flower (should have flower and a leaf or two) labelled M
15. Hand lens
16. Scalpel