NAME..............................................................................................................................

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553/3

**BIOLOGY PRACTICAL**

**PAPER 3**

JULY/AUGUST 2016

2HOURS

WESTERN JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

**BIOLOGY PRACTICAL**

**PAPER 3**

2HOURS

**INSTRUCTIONS TO CANDIDATES:**

* This paper consists of **three** questions
* Answer **all** questions
* Drawings **MUST** be made in spaces provided
* Use sharp pencils for your drawings
* Coloured pencils should not be used
* No additional sheets of writing papers are to be inserted

|  |  |  |
| --- | --- | --- |
| **FOR EXAMINER’S USE ONLY** | | |
| **Questions** | **Marks** | **Examiners’ Initials** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| TOTAL | | |

1 (a). **You are provided with specimen M which is a plant organ. State the identity of specimen using the observable features.**

Identity **01mk**

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Observable features

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(b). In an experiment to investigate rate of reaction. Three extracts of fresh plant material were obtained by crushing different grams of specimen M, then mixed with distilled water to get different extracts labelled **A, B** and **C**. Label three measuring cylinders **1, 2,** and **3** measure and transfer 15cm3 of solutions **A, B** and **C** in measuring cylinder **1, 2** and **3** respectively.

Then using 10ml, measuring cylinder measure 5cm3 of hydrogen peroxide add it to cylinder **1** and start the stop clock immediately. Measure the volume of the mixture including the froth (foam) for every 20 seconds for 120 seconds. Enter the results in the table I below. Repeat the experiment using extracts 2 and 3

**Table I**

Experimental set up in each of the measuring cylinders **6mks**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time (s)** | **Volume of mixture in cylinder 1** | **Volume of mixture in cylinder 2** | **Volume of mixture in cylinder 3** |
| 0 |  |  |  |
| 20 |  |  |  |
| 40 |  |  |  |
| 60 |  |  |  |
| 80 |  |  |  |
| 100 |  |  |  |
| 120 |  |  |  |

(b) On the same axis, plot graphs on the graph provided for the volume of cylinders **1, 2** and **3** on **y** axis with time on **X**-axis. (Use the graph on the next page). **6mks**

(c) Explain the results for the rate of reactions in **4½mks**

(i) Cylinder 1

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(ii) Cylinder 2

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(iii) Cylinder 3

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(d) Besides the factor being investigated in the experiment. State any three other factors that may affect the rate of reaction

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(e) Suggest the identity of the active substance whose activity has been investigated in the experiment above **1mk**

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2. **You are provided with a plant specimen labelled K**

(a) Identity of Specimen **1mk**

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Reasons for the identity **2mks**

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(b) Describe the structural features of the following parts of Specimen K **6mks**

(i) Calyx

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(ii) Corolla

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(iii) Androecium

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(iv) Cynoecium

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(c) (i) Name the agent of pollination of specimen K **½mk**

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(ii) Giving reason, state the type of pollination for specimen K **1½mks**

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(d) State three adaptations of specimen K for pollination by the agent named in C(i) above **3mks**

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(e) Make longitudinal section of specimen K. Draw an accurate diagram of the longitudinal section of the specimen.  **6mks**

3. **You are provided with specimen P, Q, R, S and T. Study them carefully and answer the following questions**

(a) The table below represents simple taxonomic classification of the given specimens. Complete the table and answer the questions that follow. **6mks**

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen** | **Phylum** | **Class** | **Order** |
| P |  |  |  |
| Q |  |  |  |
| R |  |  |  |
| S |  |  |  |
| T |  |  |  |

(b) From your completed table, state observable features used to group

(i) Specimen P and R in the same phylum **2mks**

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(ii) Specimen Q, S and T in the same class **2mks**

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(c) Cut the left hind leg of specimen P and make a well labelled drawing of the structure. State your magnification. **6mks**

(d) Using only eyes, antennae mouth parts construct a simple dichotomous key to identify the specimens. **5mks**

**END**