*553/2*
*BIOLOGY*
*PRACTICAL*
*Paper 2*
*July./Aug. 2019*
*2 hours*

# MOCK EXAMINATIONS 2019

## Uganda Certificate of Education

### BIOLOGY PRACTICAL

**Paper 2**

2 hours

**INSTRUCTIONS TO CANDIDATES**:

*This paper consists of **three** questions.*

*Answer **all** questions.*

*Drawings should be made in the spaces provided.*

*Use **sharp pencils** for your drawings.*

*Coloured pencils or crayons should **not** be used.*

*No additional sheets of paper are to be inserted in this booklet.*

*Work on additional sheets will **not** be marked.*

| For Examiners' Use Only | | |
|---|---|---|
| **Question** | **marks** | **Examiner's signature and number** |
| **1** | | |
| **2** | | |
| **3** | | |
| **Total** | | |

1. You are provided with solutions **A**, and solid substance D.
You are to investigate the action of substance D on solution A in different media.
(a) Label 4 test tubes as 1, 2, 3 and 4. Set up the contents of the test tubes as in table 1.

**Table1**

| Test tube | contents |
|---|---|
| 1 | 4 $cm^3$ of solution A |
| 2 | 4 $cm^3$ of solution A + a quarter spatula of substance D |
| 3 | 4 $cm^3$ of solution A + a quarter spatula of substance D + 3 drops of sodium bicarbonate |
| 4 | 4 $cm^3$ of solution A + a quarter spatula of substance D + 3 drops of hydrochloric acid |

Gently shake the test tubes to mix the contents and keep doing this after about 5 minutes. Place the test tubes in a water bath, maintained at (35-40) $^oC$.
Carry out iodine test on the contents of each test tube after 15 minutes and then after 30 minutes. Record your observations in table 2.

**Table 2** (*08 marks*)

| Tests | Observation after 15 minutes | Observation after 30 minutes |
|---|---|---|
| (i) To 1 $cm^3$ of mixture from test tube 1, add 3 drops of iodine | | |
| (ii) To 1 $cm^3$ of mixture from test tube 2, add 3 drops of iodine | | |
| (iii) To 1 $cm^3$ of mixture from test tube 3, add 3 drops of iodine | | |
| (iv) To 1 $cm^3$ of mixture from test tube 4, add 3 drops of iodine | | |

(b) From your results in Table 2, Explain the results obtained in test tube 2, 3, and 4 after 30 minutes.

(i) Test tube 2. (*03 marks*)

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(ii) Test tube 3. (*03 marks*)

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(iii) Test tube 3. (*03 marks*)

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(c) State the purpose of setting up test tube 1. (01 mark)

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(d) With a reason, suggest another test which can be carried out to obtain the results of this experiment.

(i) Test. (*01 mark*)

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(ii) Reason. (*01 mark*)

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2. Specimens **P, Q**, **R**, **S**, and **T**, which are plant structures belonging to common plant organ.

(a) Giving two reasons, state the common plant organ to which the specimens belong.

(i) plant organ. (*01 mark*)

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(ii) reasons. (*01 marks*)

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(b) (i) Describe the arrangement of veins, nature of lamina, and margin of specimens **P, Q**, **R**, **S**, and **T**.
(0$7^{1}/_{2}$ *marks*)

**Table 3**

| specimens | arrangement of veins | nature of lamina | Margin |
|---|---|---|---|
| **P** | | | |
| **Q** | | | |
| **R** | | | |
| **S** | | | |
| **T** | | | |

(ii) Using the information in Table 3, construct dichotomous key, for identifying specimen P, Q, R, S and T.
(*04 marks)*

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(c) Giving two reasons, State the class of the plants from which specimen R, was obtained. (01$^{1}/_{2}$ marks)

(i) Class

……

(ii) Reasons

……

……

(d) Draw and label specimen P. (05 marks)

3. You are provided with specimens W, X and Y. Examine them as you answer the **questions.**

(a) (i) Examine the specimens and state the location of each in the animal's body. (*03 marks)*

Specimens **W**

……

Specimens **X**

……

Specimens **Y**

……

(ii) State two adaptive features of each specimen to the location in (a)(i), as observed from the lateral view.
(06 marks)

Specimens **W**

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……

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Specimens **X**

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……

……

Specimens **Y**

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(b) Describe the structural features of specimen Y, as observed from one lateral view.

(02 *marks*)

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(c)(i) Measure width at the base and the length of the neural spine of specimen W.

(01 marks)

Width at the base.

……

Length

……

(ii) Determine the simple ratio of length of neural spine to width of neural spine of specimen W.

(01 mark)

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(iii) What is the significance of the ratio of length to width of the neural spine. (02 marks)

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(d) Draw and label the lateral view of specimen X. (*05 marks*)

*END*