**NAME ……………………………………………. INDEX NO …………………………..**

**SCHOOL …………………………………………… SIGNATURE …………………..………**

**DATE ……..…………………...**

**231/3**

**BIOLOGY**

**PAPER 3**

**MARCH/APRIL 2019**

**13/4 HOURS**

**FORM 4**

**INSTRUCTIONS TO CANDIDATES**

* Write your name and Index Number in the spaces provided above.
* Sign and write date of examination in the spaces provided above.
* Answer **ALL** questions in the spaces provided in the question paper.
* You are **not** allowed to start working with the apparatus for the first 15 minutes of the 1**3/4** hours allowed for this paper. This time is to enable you to read the question paper and make sure you have all the chemicals and apparatus that you may need.
* All workings **must** be clearly shown where necessary.
* Mathematical tables and silent electronic calculators may be used.
* This paper consists of 4 Printed pages. Candidates should check the question paper to ensure that all the papers are printed as indicated and no questions are missing

**FOR EXAMINER’S USE ONLY:**

|  |  |  |
| --- | --- | --- |
| **Question** | **Maximum Score** | **Candidate’s Score** |
| **1** | **14** |  |
| **2** | **14** |  |
| **3** | **12** |  |
| **Total Score** | **40** |  |

1. You are provided with specimen P. Make a longitudinal section.
2. (i) Draw and label one of the cut surface of the specimen. (4 Marks)

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(ii) Work out the magnification of your drawing. (1 Mark)

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1. (i) What type of fruit is specimen P? (1 Mark)

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 (ii) Give a reason for your answer. (1 Mark)

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1. (i) Suggest the type of placentation found in specimen P. (1 Mark)

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 (ii) Give one reason for your answer. (1 Mark)

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1. (i) Name the mode of dispersal of the specimen. (1 Mark)

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 (ii) State two ways in which specimen P is adapted to be dispersed by the mode named in (i) (4 marks)

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2. Squeeze out the juice from the specimen **P** into a beaker. Filter and discard the residue.

 Divide the filtrate into two portions.

 (a) Use the first portion to test for the food substances present using the reagents provided. (8mks)

|  |  |  |  |
| --- | --- | --- | --- |
| Food substance | Procedure | Observations | Conclusion |
|  |  |  |  |

(b) Boil the second portion in a test – tube, using a water bath for 15 minutes, then cool it by dipping in cold water in a beaker.

 (i) Repeat the tests carried out in 2 (a) above

|  |  |  |  |
| --- | --- | --- | --- |
| Food substance | Procedure | Observations | Conclusion |
|  |  |  |  |

 (4mks)

3. Observe carefully organisms A, B, C, D, E, F, G and H shown below and answer the questions that follow



3 (a) With reference to the organisms above complete the dichotomous key provided below (4mks)

 1. (a) Jointed legs present …………………………………………. Go to 2

 (b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_................................................................... Go to 6

 2. (a) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ………………………………………….. Go to 3

 (b) More than three pairs of legs ……………………………….. Go to 5

 3. (a) Wings present …………………………………………….. Go to 4

 (b) Wings absent ………………………………………………. Bedbug

 4. (a) Two pairs of wings ………………………………………… Dragonfly

 (b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ………………………………………. Housefly

 5. (a) Antennae present …………………………………………… Crayfish

 (b) Antennae absent …………………………………………… Mite

 6. (a) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ …………………………………………. Snail

 (b) Shell absent ……………………………………………….. Go to 7

 7. (a) Prominent clitellum visible ……………………………….. Earthworm

 (b) No clittellum visible ……………………………………… Leech

(b) Use the completed dichotomous key to identify the following organisms. State the

 steps followed to arrive at the identify. (10mks)

|  |  |  |
| --- | --- | --- |
|  Organism |  Steps followed |  Identify |
| C |  |  |
| E |  |  |
| F |  |  |
| G |  |  |
| H |  |  |