Resource Mock examinations

June 2016

Biology Practical

P530/3

3 Hours

**Instructions to candidates:**

* Attempt all questions in this test paper
* All answers must be written in the spaces provided
* Neat work is recommended

For Examiners use only

|  |  |
| --- | --- |
| Question | Marks |
| 1 |  |
| 2 |  |
| 3 |  |
| Total |  |

Qn.1 (36 marks, 60 minutes)

You are provided with a freshly killed specimen labeled T.

1. Dissect the specimen to release the skin from the body wall on the ventral side;
2. Describe the attachment of the skin on the body wall (3marks)

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1. Relate the attachment of the skin in a(i) above to the survival of the specimen in its habitat (3 ½ marks )

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1. Observe the inner surface of the skin and relate its structure to its suitability as an organ of respiration (3 marks)

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1. Dissect the specimen to display the abdominal trunk organs. Displace the alimentary canal to the left. Without displacing any other organ, draw and label fully. (26 marks)

Qn. 2 (37 marks, 80 minutes)

You are provided with specimen P and solution X.

1. Obtain a cube measuring 1x1x1cm from specimen P. Crush it to obtain an extract. Carry out tests in table 1 below on both the extract and solution X. Record your tests, observations and conclusions.

Table 1 (12 ½ marks)

|  |  |  |  |
| --- | --- | --- | --- |
| Test | Observations | | Conclusions |
| Starch Test | P |  |  |
| X |  |  |
| Reducing Sugar Test | P |  |  |
| X |  |  |

1. Obtain 4 test tubes labeled 1-4. To all add 3cm3 of X. Now obtain 4 cubes from specimen P of dimensions 1x1x1cm and treat them as follows.

Cube 1: Boil for 1 minute in water, remove and cool

Cube 2: Cut into 2 pieces

Cube 3: Cut into 4 pieces

Cube 4: Leave intact

Transfer the cubes into the corresponding test tubes 1-4. Leave for one hour as you continue with other tasks. After this time, crush the cubes/the pieces to obtain extracts 1-4. Carry out a reducing sugar test on extracts and record your observations in the table 2 below (12 marks)

Table 2

|  |  |
| --- | --- |
| Test tube | Observations |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |

1. What process is being investigated in this experiment? (1 mark)

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1. Give precise explanations for the observations made in tests tubes 1-4 as informed by the process stated in c(i) above. (9 marks)
2. Test tube 1

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1. Test tube 2

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1. Test tube 3

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1. Test tube 4

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Qn. 3 (27 marks, 40 minutes)

You are provided with specimens A, B, C, D and E. Make biological examination of the specimens using a hand lens and answer the following questions

1. Identify the specimens and place them into one major group. (1 mark)

…………………………………………………………………………………………What diagnostic features have you used to give the specimens the identity in (a) above? (3 marks)

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1. Complete the following table by giving the salient description of the structures indicated in table 3 below (12 ½ marks)

Table 3

|  |  |  |  |
| --- | --- | --- | --- |
| Specimen | Abdomen | Wings | Tarsal region |
| A |  |  |  |
| B |  |  |  |
| C |  |  |  |
| D |  |  |  |
| E |  |  |  |

1. Using structural features of the wings, construct a dichotomous key to identify the specimens (5 marks)

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1. Observe the tarsal region of specimen B under low power of the microscope:
2. Make a large a large labeled drawing. (2 ½ marks)
3. Relate the structure of the tarsal region to the survival of the specimen in its habitat. (3 marks)

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END

**Instructions to the teacher responsible for setting up the practical**

Provide each candidate with the following:

Freshly killed toad labeled T

10 mls of solution X (Made by dissolving 180g of glucose to make 1litre of solution)

A large sized Irish potato labeled P

6 test tubes

A pestle and a mortar

Fleshly killed specimens

House fly labeled A

Worker bee labeled B

Worker termite labeled C

Butterfly labeled D

Cockroach labeled E

A microscope (Objective lens X4 or X5)

A hand lens

Access to heat source and reagents for food test