**TRIAL ONE EVALUATION TEST**

**BIOLOGY PAPER 3 (PRACTICAL)**

**231/3**

**NAME ............................................................... INDEX NO...............................DATE .....................**

**SIGN ..................................**

**TIME 1 ¾ HOURS.**

1. You are provided with;

* One Irish potato
* A cork borer
* Solution P
* Solution Q
* 3 Petri dishes
* Tissue paper
* 3 labels.

1. Make three Irish potato cylinders each measuring 30mm in length. Place one cylinder on an empty Petri dish, one cylinder in solution P on a Petri dish and the other in solution Q on a Petri dish. Label the three Petri dishes as Air, P and Q respectively leave the set-ups to stand for 30 minutes. After 30 minutes, feel each cylinder with your fingers for texture and flexibility. Record your observation in the table below.

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| --- | --- | --- |
| **Cylinder in** | **Texture** | **Flexibility** |
| Air  Solution P  Solution Q |  |  |

(6mks)

1. Remove each cylinder from the solution (*after 30 minutes*). Wipe each with a tissue paper and measure their lengths again. Also measure the length of the cylinder placed in air. Record your measurements in the table below. Work out the percentage change in length and record in the last column.

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| --- | --- | --- | --- |
| **Cylinder in** | **Initial length** | **Final length** | **% change** |
| Air  Solution P  Solution Q | 30mm  30mm  30mm |  |  |

(6mks)

1. From your results in (a) and (b) above state the nature of solutions P and Q in relation to the potato cells.

Solution P ...................................................................................................................................

Solution Q ............................................................................................................................(2mks)

1. Why was the potato cylinder placed in air included in the experiment? (1mk)

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1. (i) Account for the change in length of the potato cylinder placed in solution P. (3mks)

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(ii) Account for the change in length of the potato cylinder placed in solution Q. (3mks)

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1. (i) Name the physiological process that was taking place in this experiment. (1mk)

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(ii) State the importance of the physiological process that you have named in f (i) above to plants. (3mks)

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1. (i) What would happen if the potato cylinders were first boiled before putting them in solutions P and Q? (1mk)

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(ii) Give a reason for your answer in g (i) above. (2mks)

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1. You are provided with specimen L and a hand lens.
2. (i) Draw and label the external parts of specimen L. (2mks)

(ii) Work out magnification. (1mk)

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1. What is the significance of total surface area of the leaf to the plant? (1mk)

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1. How is specimen L adapted to perform its functions? (3mks)

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1. You are provided with specimen S. Observe specimen S carefully.
2. With a reason, state the agent of dispersal for specimen S.

Agent.............................................................................................................................. (1mk)

Reason........................................................................................................................... (1mk)

1. Make a transverse section of specimen S.
2. Name the type of placentation in specimen. (1mk)

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(ii) Name the type of reproduction exhibited by specimens S. (1mk)

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(iii) Give a reason for your answer in b (ii) above. (1mk)

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