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BIOLOGY PRACTICAL PAPER 3

MARKING SCHEME

1. You are provided with 10% glucose solution and substance **labeled Y**. Also provided is a solution labeled **X.** You are to investigate the reaction between the glucose solution and **substance Y**. Measure 20.00cm^3 of the glucose solution and transfer it to the boiling tube provided. Transfer all the **substance Y** provided into the solution in the boiling tube. Tightly fit the rubber bung carrying a delivery tube to the boiling tube. Place the boiling tube in a water bath kept between 35 – 38^0 c. Measure 1.0. Cm3 of **solution X** and transfer to a test tube. Connect the delivery tube so that the open end enters the **solution X**. Allow the set – up to stand for about 30 minutes and during this time observe the changes occurring in the boiling tube and in the test tube having **solution X.**

a) Fill the table below **(2 marks)**

Tube	Observations
Boiling Tube	**Bubbles / effervescence**
Test Tube	**Solution X turns into white ppt**

b) What conclusions can your draw from your observations in the test tube? (**2 marks)**

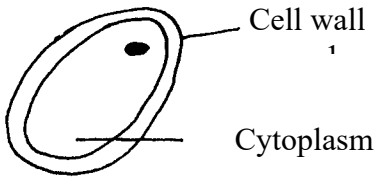
The colourless gas produced is carbon (iv) oxide, solution x is lime water / calcium hydroxide.

c) Name the process that took place in the test tube (**1 mark)**

Fermentation/ anaerobic respiration

d) Shake the contents of the boiling tube and using a dropper remove a little of the contents. Transfer a drop to a glass slide; add two drops of methylene blue stain. Cover with a cover slip and observe using a microscope of x10 or x15 eye piece lens.

(i) Draw and label the **substance Y** which is in the slide **(2 marks**)



Mg x 150

(ii) What is the possible identity of **substance Y** **(1 mark)**

Yeast

e) Why was the temperature of the water bath kept between 35 – 38^{0}c **(1 mark)**

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It is the optimum temperature range /best temperature/most suitable for functioning of enzymes.

f) If the experiment was done under the following conditions, suggest, giving reasons the expected results.
(i)Water bath was kept at 100^0c

Observations: **(1 mark)**
No reaction / no respiration /no co_2 production /no effervescence.
Reasons: At high temperature the enzymes are denatured and yeast cells are killed (1 mark)

g) From the microscope
(i) Name the part **labeled Q.** **(1 mark)**
Low power objective lens
(ii) Give the function of part **labeled P.** **(1 mark)**
Allows change from one objective lens to another,

h) Name the form in which **substance Y** stores its excess glucose **(1 mark)**

Glycogen;

Q2.(**a**)
(i) **N**ame given to the coiled part labeled **T** found on specimen **A** (1 mark)

Tendril; *Rj: wrong spellings. Acept. Plural.*

(ii) Type of response exhibited by the coiled part on specimen **A** (1marks)

Thigmotropism/Haptotropism; *Rej wrong spellings.*

(iii) Stimulus responsible for the response named in (ii) above. (1mark)

Contact; *Rj. Touch*

(iv) How the response exhibited by the coiled part on specimen **A** occurred (3 marks)

Due to contact; the auxins/IAA moved away from the surface of contact/accumulated on the surface away from contact; where they caused faster growth/cell elongation hence curling/coiling (around a support);

(v) Biological significance of the response described in (iv) above to the survival of the specimen. (1 mark)

Has tendril to provide support; (by coiling around firm support)./to reach for light.

b).
(i) The agent of pollination for the specimen B. 1mk

- ***Insects;***

(ii) A reason. 1mk

- ***Brightly coloured petals;***

(iii) The external features of leaves of the specimen B2. (3mks)

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- ***Net veined;***
- ***Serrated blade;***
- ***Pointed apex of leaf.***

(iv). The class to which specimen B belongs. 1MK

- ***Dicotyledonae; rej. dicotyledon***

(v) Reason for answer in (iv) above. (1mk)

- ***Floral parts are in 5 /multiples of 5s.;***

Q3

i) Identity of the section ***longitudinal section*** ; (1Mk)

ii) Parts labeled A, B and C (3Mks)

A__***Cortex***

B__***Medulla***

C__***peivis;***

iii) Two functions of the specimen.

- ***ionic balance in the body/Osmoregulation;***
- ***Excretion of metabolic wastes;***
- ***Regulate PH of body fluids.*** (2mks)

iv) Label on the photograph the region of the specimen where the Glomerulus and Loop o are located. (2mks)

(v)Name a process that occurs in the glomerulus and Loop of Henle

Glomerulus___ _____ ***ultra filtration***

Loop of Henle_____ **re-absorption of water and salts.** (2mks)

(vi) Name two renal diseases

proteinuria and nephritis

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BIOLOGY 231/3

PAPER 3

This document must not be seen by the candidates whatsoever

CONFIDENTIAL INSTRUCTION TO SCHOOLS

The information contained in this paper is to enable the head of the school and the teacher in charge of Biology to make adequate preparations for this year's Biology Practical examination.

NO ONE ELSE should have access to this paper or acquire knowledge of its contents. Great care **MUST** be taken to ensure that the information herein does not reach the candidates either directly or indirectly. The teacher in charge of Biology **SHOULD NOT** perform any of the experiments or give any information related to these instructions to the candidates.

***Each candidate will require the following*:**

1. 10% glucose solution
2. Substance labeled **Y- yeast**
3. Solution labeled **X – calcium hydroxide**
4. Measuring cylinder
5. Boiling tube
6. Thermometer
7. Delivery tube at least bended
8. Water bath
9. Stop watch
10. Methylene blue
11. Stop watch
12. Methylene blue
13. Glass slide and cover slip
14. A dropper
15. Microscope with the following parts labeled **Q**-lower objective lens and **P** revolving nose piece
16. Rubber bung/ stopper.
17. Test tube

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