**231/3**

***CONFIDENTIAL***

**You are required to have the following**

1. 8cm long visking tubing
2. About 40cm3 iodine solutions in a 100ml glass beaker.
3. 10ml measuring cylinder
4. About 8cm3 starch solution labelled solution y in a test tube.
5. Two pieces of cotton thread about 8cm long each.
6. Distilled water in a wash bottle.
7. Watch/clock
8. A hand lens.
9. Moss plant labelled k in a petri dish [showing rhizoids, leaves, seta and capsule].
10. A 15/30cm long transparent ruler.
11. 10cm3 of dilute hydrogen peroxide.
12. A scapel
13. One piece of irish potato.
14. 1 boiling tube
15. Source of heat [water]
16. About 2ml corn oil labelled substance z.
17. 2cm3 of fresh milk in a test tube labelled solution c
18. One piece of lemon fruit labelled specimen X
19. 3 clean test tubes
20. 2cm3 of sodium hydrogen carbonate solution
21. A dropper
22. 2 labels

**NAME……………………………………………………………………INDEX NUMBER…………………..**

**DATE: …………………………………………… ADM NO: ………………………**

**231/3**

**BIOLOGY**

**PAPER 3**

**(PRACTICALS)**

**YEAR 2020**

**13/4 HRS**

***INSTRUCTIONS***

1. **Write your name and index number in the spaces provided above**
2. **Answer all questions in the spaces provided**
3. **You are required to spend the first 15 minutes of the 13/4 hrs around for this paper reading the whole paper carefully before commencing your work.**
4. **This paper consists of four printed pages.**
5. **Additional papers must not be inserted.**
6. **Answer all questions in English.**

1. You are provided with iodine solution, visking tubing, a beaker and a solution labeled Y. tie one end of the tubing tightly using the tubing the thread provided. Measure 5ml of solution Y and pour into the visking tubing. Tie the other end of the tubing tightly. Ensure there is no leakage. Rinse the tubing with distilled water and immerse it with its content s in a beaker containing iodine solution. Allow it to stand for 20 minutes.

a.

i. Record your observation at the beginning and end of the experiment in the table below. [4mks]

|  |  |  |
| --- | --- | --- |
| Experimental | Solution Y inside the tubing | Iodine solution outside the tubing |
| Beginning of experiment |  |  |
| End of experiment |  |  |

ii. What was the identity of solution Y? [1mk]

iii. Suggest the nature of visking tube. [1mk]

iv. Account for the results obtained in a [i] above. [4mks]

b. i. which physiological process was being investigated in this experiment? [1mk]

ii. State one factor which affects the process being investigated. [1mk]

2. Use the hand lens provided to observe specimen K and answer the questions that follow.

* + - 1. (i) In the space below draw a fully labeled diagram of representative part of the specimen. (5mks)

(ii) Calculate the magnification of your drawing. (2mks)

* + 1. Identify:
       - 1. The Kingdom (1mk)
         2. The Division, to which the specimen belongs. (1mk)
         3. Give a reason for your answer in b (ii) above. (1mk)

* + - 1. What is the mode of reproduction in the specimen? (1mk)

(ii) Explain the significance of colour observed in the specimen K [2mks]

1. Take 2 clean test tubes and into each add 5cm3 of dilute hydrogen peroxide. Label the test tubes as ***A*** and ***B***. Cut 2 cubes of Irish potato measuring about 1cm3 each. Boil one cube in a boiling tube with some water for about 5 minutes. Drop the boiled cube into test tube ***A*** and non-boiled cube into test tube ***B***.

State your observations.

1. Test tube **A**  (1mark)

Test tube **B** (1mark)

1. Account for your observations in:

Test tube **A** (2marks)

Test tube **B** (2marks)

(c) Take a small amount of substance ***Z*** provided and add to it 2cm3 of sodium hydrogen carbonate.

i) Stateyour observations (1mark)

ii) Which process in the body is illustrated above? (1mark)

iii) State the part of the body where the process takes place. (1mark)

iv) What is the significance of the process? (1mark)

(d) Put 2cm3 of liquid labelled as ***C*** into a test tube. Squeeze some juice from specimen ***X*** into a beaker. Draw some of the juice into a dropper. Add 3 drops of the juice into the test tube with solution ***C***.

i) State your observation.

(1mark)

ii) State the part of the human body where the process demonstrated above occurs and the enzyme that carries out the process.

Part of body (1mark)

Enzyme (1mark)

iii) Which gland produces the enzyme stated in (ii) above? (1mark)

iv) Which hormone stimulates the production of the enzyme stated in (ii) above? (1mark)