LS11 **Yeast Fermentation Virtual Lab**  Name: \_\_\_\_\_\_\_

**What factors affect fermentation of yeast?**

Background: Yeast is used in making bread dough. Yeast can be purchased in dry granules and is dormant until activated by warm water and sugar. When activated, yeast will consume the sugar and perform fermentation, releasing a gas as a waste product. It is the gas escaping that cause the dough to rise.

Litmus paper comes in either Red or Blue. It turns red in acidic conditions blue in basic conditions. Carbon Dioxide and nitrogen gas when mixed with water will form a weak acid solution. Oxygen or hydrogen gases will not change pH of water.

This experiment investigates some factors that may affect fermentation by yeast.

**Go to**: <https://www.bch.cuhk.edu.hk/vlab2/animation/fermentation/index.html>

**Materials:** yeast, glucose, flour, water, flasks, 5 balloons, hot plate

**Observations:** Complete the chart

|  |  |  |
| --- | --- | --- |
| Flask | Conditions | Results after 24hr |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |

Two of the above conditions indicated fermentation. These were collected and the gas was tested with litmus paper.

**Questions:**

1. What was the *dependent* variable in this experiment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What was the gas produced? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Where did it come from?
3. What was the purpose of using a treatment with boiling water? Why didn’t fermentation take place?
4. What was the purpose of using a treatment with yeast and water (no glucose)? Why did no fermentation take place?
5. How did carbon dioxide turn litmus paper red?
6. What is zymase and what does it do?
7. Explain why the flour flask produced less gas.
8. What type of fermentation is this called? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. What are the reactants for this type of fermentation? What are the products?