**Name**

**HUMAN BIOLOGY YEAR 11 ATAR 2018**

**TASK 1: LABORATORY REPORT:**

**LOOKING AT EXCHANGE OF MATERIALS IN EGGS 50 MARKS**

Write up a formal report of the experiment that was done on the eggs. **All work is to be done in class.** Use the following to help you.

When writing a laboratory report you should include the following:

1. **Introduction:** This provides background information, defines key words, and discusses the need for, or relevance of the experiment you are carrying out. It may also pose questions to be answered by the experiment. Questions you should answer include:

* Why did we do this experiment? [1]
* Why were eggs used? [1]
* Why would the eggs need to be de-shelled? [1]
* What is meant by the following terms?
  + Concentration [1]
  + Solution [1]
  + Hypertonic [1]
  + Hypotonic [1]
  + Isotonic [1]
  + Diffusion [1]
  + Osmosis [1]

1. **Hypothesis**: This describes the hypothesis to be tested. The hypothesis should be a testable statement, referring to both independent and dependent variables. [2]
2. **Materials or Equipment**: This is a list of equipment needed. A well-labelled diagram showing the set up of equipment to be used is usually included. [2]
3. **Method**: This is a set of instructions; in point form, for carrying out the experiment. They should be sufficiently detailed that someone else could use them to carry out the same experiment. [2] The instructions should include details of:
   * 1. What you are changing (independent variable), and how it is being changed [1]
     2. What you are comparing your experimental set-up to (the control) [1]
     3. What you are measuring (dependent variable), and how it is to be measured [1]
     4. What things are being kept constant between the experimental and control groups (controlled variables) [1]
     5. How you are increasing reliability of the experiment (sample size, replication, repetition, etc) [1]
4. **Results**: This shows the measurements and observations you have made. This should include tables and graphs of the data you collected where possible, as well as a written summary of the observations, and any patterns observed. [9]
5. **Conclusion**: A statement as to whether the hypothesis has been supported or disproved (or neither). [1]
6. **Discussion or Analysis**: This is where you discuss your conclusion(s) and the experiment as a whole. Your discussion should include any problems or errors in the experimental design, and suggest improvements or further experiments that could be carried out. You should be able to discuss the relevance or importance of your findings, especially in light of your introduction. This is where you answer any questions posed by the introduction (or teacher or lab manual). Questions you should answer include:
7. Were there any problems or difficulties with the experiment? [1]
8. How could you improve the reliability of the experiment? [1]
9. Explain the change in appearance of the egg in this solution in terms of diffusion and osmosis by answering the following questions:
10. Describe what happened to the weight of the egg in the **distilled** water. [1]
11. Was this solution hypotonic or hypertonic compared to the egg? [1]
12. What was happening in terms of osmosis? [1]
13. Describe what happened to the weight of the egg in the **0.1% saline** solution
14. Was this solution hypotonic or hypertonic compared to the egg? [1]
15. What was happening in terms of osmosis? [1]
16. Describe what happened to the weight of the egg in **salt**. [1]
17. Was this solution hypotonic or hypertonic compared to the egg? [1]
18. What was happening in terms of osmosis? [1]
19. No **isotonic** solution was used in this experiment. If one had of been used,
    1. What would you expect the egg to look like at the end of the experiment? [1]

ii) What movement of water would you have expected to see in this solution? [1]

1. Blood plasma is normally isotonic to the cells in our body. What would happen if our blood became
2. Hypertonic? [1]
3. Hypotonic? [1]

Practical skills [4]

# Checklist for writing laboratory reports

# Introduction:

|  |  |
| --- | --- |
| Does it state the purpose or relevance of the experiment? |  |
| Does it define key terms? |  |
| Does it provide relevant background information? |  |
| Does it make a prediction? |  |

**Hypothesis:**

|  |  |
| --- | --- |
| Does it identify the dependent variable? |  |
| Does it identify the independent variable? |  |
| Does it identify all the controlled variables? |  |
| Is it only one sentence long? |  |
| Does it contain only one idea? |  |
| Does it mention both independent and dependent variables? |  |
| Can it be measured? |  |
| Is it worded as a testable statement? |  |

**Equipment:**

|  |  |
| --- | --- |
| Is your equipment listed one under another? |  |
| Does it use numbers, sizes and units of measurement? |  |
| Does the diagram show how the equipment is arranged? |  |
| Is the diagram drawn in pencil? |  |
| Is the diagram labelled? |  |

**Method:**

|  |  |
| --- | --- |
| Is the method written in point form one under the other? |  |
| Does it tell how the experiment was conducted in correct order? |  |
| Is the method written in the third person? |  |
| Does it contain enough detail so that someone else can read your laboratory report and repeat the experiment exactly as you did it? |  |

**Results:**

|  |  |
| --- | --- |
| Does your table have a title? |  |
| Is the independent variable in the left hand column of your table? |  |
| Have stated the correct units of measurement in your table? |  |
| Have you written a statement summarising your results? |  |
| Have you identified any patterns or trends in the data? |  |

**Conclusion:**

|  |  |
| --- | --- |
| Does the conclusion relate the results back to the hypothesis? |  |
| Does it state whether the results supported or disproved the hypothesis? |  |
| Does it begin with the words “the results supported/did not support the hypothesis”? |  |
| Does it avoid using the word “prove”? |  |

**Discussion:**

|  |  |
| --- | --- |
| Does it discuss any difficulties or errors in the experimental procedure? |  |
| Does it state whether it was a fair test, and why it was/was not? |  |
| Does it make suggestions for improving the experimental procedure? |  |
| Does it identify anything that was unusual or unexpected? |  |
| Does it discuss the relevance of your findings, or answer the questions posed in the introduction? |  |