2A2B HUMAN BIOLOGY OSMOSIS VALIDATION TEST

Name: Key Teacher: /23

1. Write a definition for the word diffusion. optional

The movement of (solute) particles (1) from an area where they are in higher concentration to an area where they are in Lower concentration. (1)

(2 marks)

2. Write a definition for the word osmosis.

The movement of water molecules from a* dilute solute solution to a more concentrated solute solution (1) through a semi permeable membrane (1)

or an area of higher water molecule concentration* to an area of lower water molecule concentration. (2 marks)

3. During the 'osmosis egg' experiment which was done in class, what was the dependent variable?

The mass of the egg (1 mark)

4. During the 'osmosis egg' experiment which was done in class, what was the independent variable?

The solution concentration. (1 mark)

or The amount of salt (solute) in solution.

5. During the 'osmosis egg' experiment which was done in class, explain one way accuracy could have been increased.

Multiple trials (more eggs tested).

or Repeat the experiment.

or increase sample size

(1 mark)

6. Using the data given below, complete the following questions.

The mass of one hundred (100) raisins was measured. The raisins where placed in 1 litre of distilled water and left for 48 hours. After 48 hours, the mass of the raisins was recorded. Another one hundred (100) raisins of the same variety had their mass measured. This second group of raisins were placed in a beaker containing 1 litre of concentrated sugar solution. After 48 hours the raisins were removed from the beakers and their mass was recorded.

This data is shown in the table below.

Solution raisins were placed in	Starting mass (g)	Mass (g) after 48 hours
Distilled water	50	120
Sugar solution	50	55

a) What was the independent variable for this investigation?

Sugar (or solute) concentration. (1 mark)

b) What was the dependent variable for this investigation?

Mass of Raisins. (1 mark)

c) List two controlled variables mentioned.

48 hrs (time). Type of Raisins. Number of raisins. Volume of Solution.

any two ✓ (2 marks)

d) Draw a graph that allows you to COMPARE the results of the experiment. (5 marks)

- must have suitable heading.
- Must be column/bar Graph.
- Solution on horizontal axis.
- Axis labelled
- Unit of measure give.

pencil/neat

e) Discuss two ways in which the experiment could be improved in order to reduce error and improve accuracy.

Multiple trials (1)

Repeat (1)

keep controlled variables controlled

increase ~~set~~ sample size

(2 marks)

f. Complete the sentences below by filling in the blank words. Use the information you have learnt about the movement of water molecules.

If the raisin was a model of a living cell, the skin of the raisin would represent the membrane of the cell.

A solution with a large amount of solvent compared to solute can be described as a dilute solution.

The water molecules moved from an area where there was a larger concentration of water molecules, to an area where there was a lower concentration of water molecules.

The water molecules moved due to the concentration gradient.

(5 marks)