**Review Worksheet: Blood Glucose Regulation**

**Name: ……………………………………………………………..**

*Do these questions, using your learning resources. Look at the “marks” to give you an idea of the level of detail required in the response (formative only – does not count towards your grade). At the end, mark your work, correct it, and fill in the reflection section. Questions marked \* require you to use reasoning, inferring and application of knowledge, or perhaps extra research to get the answer. It won’t be right there in the text.*

1: Define each of the following terms and describe its role in blood glucose homeostasis:

(10 marks)

Glycogenesis: ………………………………………………………………………………………….

………………………………………………………………………………………….

Glycogenolysis: ………………………………………………………………………………………….

………………………………………………………………………………………….

Gluconeogenesis: ………………………………………………………………………………………….

………………………………………………………………………………………….

Lipogenesis: ………………………………………………………………………………………….

………………………………………………………………………………………….

Lipolysis: ………………………………………………………………………………………….

………………………………………………………………………………………….

2: Write a word equation for cellular respiration and explain its significance in glucose homeostasis.

(4 marks)

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

3: Lily goes for a 5 km run after she wakes up in the morning.

1. What would be the expected effect on Lily’s blood glucose levels during her 5km run and why?

(3 marks)

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

1. Draw an annotated steady-state control model to show how blood glucose homeostasis would occur during Lily’s run:

(15 marks – 18 marks available in key)

4: After her run, Lily goes out for breakfast.

1. What would be the expected effect on Lily’s blood sugar levels after eating breakfast and why?

(3 marks)

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

1. Draw and annotated feedback loop to show how blood glucose homeostasis would occur after Lily’s meal.

(12 marks)

5: Peter has a normally functioning endocrine pancreas and is in good health. Does his blood glucose stay at the homeostatic set point all day? Explain your answer.\*

(6 marks)

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

6: Insulin is an amine hormone. Describe in general how amine hormones have their effect on cells.

(5 marks)

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

7: Cortisol is a steroid hormone. Describe how steroid hormones have their effect on cells.

(7 marks)

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

…………………………………………………………………………………………………………………….

Go back and mark your work using the marking key provided. What score did you get? /65

*I included enough detail in my answers.*



*I was able to find information in the text/powerpoint presentation.*

*I was able to reason and infer where the information wasn’t directly in the text (questions with \*).*

*I marked my work and wrote down any answers where I missed marks.*