**Review Worksheet: Disruptions to Homeostasis**

*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: Draw a detailed flow diagram to show how thyroxine levels are regulated in a healthy person, including the effects of thyroxine on body tissues.

(12 marks)

2: Hyperthyroidism is a disorder where too much thyroid hormone is produced:

1. List symptoms of hyperthyroidism

(4 marks)

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1. Using your understanding of temperature homeostasis, draw an annotated feedback loop to describe why someone with hyperthyroidism might sweat excessively.

(12 marks)

1. List and briefly describe some treatments for hyperthyroidism.

(4 marks)

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3: Hypothyroidism is a disorder where not enough thyroid hormone is produced.

1. Why might someone with hypothyroidism experience unexplained weight gain?

(3 marks)

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1. People with hypothyroidism have higher than normal levels of Thyroid Stimulating Hormone (TSH). Using your understanding of thyroid regulation, explain why this occurs.

(7 marks)

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4: Emphysema is a disease that disrupts homeostasis by destroying alveoli in the lungs. Using your understandings of blood gas homeostasis, draw an annotated feedback loop to show why increased respiratory rate is a symptom of emphysema.

(12 marks)

5: Draw a detailed flow diagram to show how growth hormone is regulated in a healthy person, and its effect on the body.

(10 marks)

6: Describe in detail how recombinant DNA technology could be used to provide synthetic growth hormone to people with a growth hormone deficiency.

(8 marks)

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7: Gene therapy is currently experimental and is not yet used to treat human disease.

1. Describe the process behind how gene therapy might work.

(2 marks)

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1. Describe the causes and symptoms of one disease that could be treated by gene therapy in the future:

(5 marks)

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8: Cell replacement therapy is currently experimental and is not yet used to treat human disease.

1. Describe the process behind how cell replacement therapy might work.

(2 marks)

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1. Name two diseases that could be treated using cell replacement therapy in future:

(2 marks)

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Go back and mark your work using the marking key provided. What score did you get? /83

*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.*