****Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Due date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Year 12 ATAR Human Biology Assessment Task 1**

**Endocrine System Dysfunction Extended Response (7 of 30 marks)**

**Your task:** Research answers to the questions below in preparation for an in-class validation test on the topic. You will be required to submit your research notes before you complete the validation test.

The nervous and endocrine systems work together to control the body. When there is a problem with either system, the body can undergo major problems. Modern medicine and advances in technology have allowed for the diagnosis and treatment of a number of diseases and disorders which affect the endocrine and nervous systems.

**Part A – Hormone replacement therapies (4 marks)**

Diseases involving the endocrine system often involve a failure to produce normal levels of a particular hormone. These conditions can be treated by hormone replacement therapy (providing doses of the missing hormone).

1. Describe four conditions that can be treated with hormone therapy. In each case, explain why hormones can be used to treat the condition.

2. Hormone treatment used to involve extraction of hormones from natural sources. These are called natural hormones.

a. Name two sources that could be used to extract natural hormones.

b. Name one hormone that has been produced in this way and explain how it was extracted.

c. Describe two problems associated with the production or use of natural hormones.

Most hormones used currently are either synthetic or produced using genetic engineering (recombinant DNA technology).

3. Discuss what is meant by ‘synthetic hormone’ by:

a. Naming a synthetic hormone and describing the disease/disorder it treats.

b. Describing the advantages of using a synthetic hormone has over using a natural hormone.

c. Describing problems that might be seen with the production or use of synthetic hormones.

4. Discuss what is meant by a ‘genetically engineered hormone’ by:

a. Naming a genetically engineered hormone and describing the disease/disorder it treats.

b. Describing the process(es) involved in producing this hormone.

c. Describing the advantages of using a genetically engineered hormone over using a natural hormone.

d. Describing the problems that might be seen with the production or use of genetically engineered hormones.

**Part B – Curing disease (2 marks)**

Hormone replacement therapy treats the symptoms but does not cure the underlying cause of endocrine disease. Many disorders of the nervous system, such as, Alzheimer’s disease, Parkinson’s disease, and motor neuron disease, involve the degeneration of or damage to neurons or brain cells. Drug therapies exist that aim to treat the symptoms or slow the progression of these diseases, but most have no cure. Currently medical researchers are looking at how gene therapy or cell replacement therapy could be used to cure some of these diseases.

1. Research gene therapy **or** cell replacement therapy and:

a. Describe what is involved in the treatment.

b. Describe one disease or condition which it could treat.

c. Explain how the treatment you are researching would help treat or cure this condition.

d. Describe the advantages this treatment would have over treatments that are currently available.

e. Discuss problems or uses that could be seen with this treatment.

**References (1 mark)**

You should use at least 3 different sources of information for your research. Please use the *Harvard Referencing Guide* (available to download from your class Connect page) to style your references.

Be prepared to answer questions on your research in an in-class test. You will not be able to use your notes, but you must submit them on the day of the test.

****Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Year 12 ATAR Human Biology Assessment Task 1**

**Endocrine System Dysfunction Validation Test (23 of 30 marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| Research: \_\_\_\_\_\_\_\_ / 7 | Validation Test: \_\_\_\_\_\_\_\_ / 23 | Total: \_\_\_\_\_\_\_\_ / 30 | \_\_\_\_\_\_\_\_\_\_ % |

**Write your responses in the spaces provided.**

1. Describe one condition treated with hormone replacement therapy and name the hormone used in its treatment. [2]

2. Describe one source of natural hormones and give an example of a hormone produced in this way. [2]

3. Describe one problem associated with the production or use of natural hormones. [1]

4. Discuss what is the meant by a ‘synthetic hormone’ by:

a. Naming a synthetic hormone and describing the disease/disorder it treats. [2]

b. Describing one advantage using a synthetic hormone has over using a natural hormone. [1]

c. Describing one problem that might be seen with the production or use of synthetic hormones. [1]

5. Discuss what is meant by a ‘genetically engineered hormone’ by:

a. Naming a genetically engineered hormone and describing the disease/disorder it treats. [2]

b. Describing the process(es) involved in producing this hormone [4]

c. Describing one advantage using a genetically engineered hormone has over using a natural hormone. [1]

d. Describing one problem that might be seen with the production or use of genetically engineered hormones. [1]

6. For the treatment (gene therapy or cell replacement therapy) you researched:

a. Describe what is involved in the treatment. [2]

b. Describe one disease or condition which it could treat. [1]

c. Explain how the treatment you researched would help treat or cure this condition. [1]

d. Describe one advantage this treatment would have over treatments that are currently available. [1]

e. Discuss one problem or issue that could be seen with this treatment. [1]