**Review Worksheet Answers: Intro to the Endocrine System**

1: What are hormones?

(3 marks)

*Hormones are chemical messengers (1) secreted from endocrine glands (1) into the blood (1).*

2: Give an overview of the structure of the Endocrine System.

(5 marks)

*The endocrine system is made up of a series of glands (1) that secrete chemicals called hormones (1). Different glands secrete different hormones (1). Hormones are released into the bloodstream (1) and travel around the body, where they have effects on body cells (1).*

3: Describe the function of the endocrine system.

(5 marks)

*The endocrine system is a messenger system (1) that assists in maintaining the internal conditions of the body (homeostasis) (1) by detecting changing internal conditions (1), then producing and releasing hormones (1) that affect body cells (1), which then act to restore homeostasis (1).*

4: Compare the structure and function of endocrine glands and exocrine glands:

(10 Marks)

|  |  |  |
| --- | --- | --- |
|  | Exocrine Glands | Endocrine Glands |
| Example | *Any one of: (1)*  *Salivary Gland*  *Sweat Gland*  *Mucus Gland* | *Any one of: (1)*  *Pancreas*  *Pituitary*  *Thyroid*  *Or any other endocrine gland* |
| Structure | *Gland tissue with duct to local area (1)* | *Gland tissue with blood supply (1)* |
| Type of substance produced | *Secretions (1)* | *Hormones (1)* |
| Function | *Secretions travel down ducts (1) to local areas and have their effects locally (1)* | *Hormones travel in the bloodstream (1) and affect all cells with the correct receptors. (1)* |

5: What are hormone receptors?

(3 marks)

*Hormone receptors are proteins (1) on or in cells (1) to which hormones can bind (1).*

6: Why do some hormones have effects on most body cells, but other hormones only have their effect on a particular organ?\*

(7 marks)

*Hormone receptors are specific (1), which means that each receptor can only bind to one type of hormone (1). Cells and tissues vary in what types of receptors they have (1). Receptors for some hormones are on almost all body cells (1), so the effect of the hormone will be widespread (1). Other receptors are only found on cells and tissues for a particular organ (1), so the hormone that matches that receptor will only affect that organ. (1)*

7: What is hormone saturation, and what happens if it occurs?

(3 marks)

*Hormone saturation is when all available receptors are filled (1) by the hormone specific to them. It means that no further hormone can bind (1), so excess hormone will have no additional effect (1).*

8: List three ways that target cells respond to hormones.

(3 marks)

*Target cells can respond to hormones in the following ways:*

* *Activate genes in the nucleus to produce specific enzymes or structural proteins (1)*
* *Change the shape or structure of enzymes to turn them “on” or “off” (1)*
* *Change the rate of protein production via rate of transcription and translation (1)*

9: How are hormones removed from the body when they are no longer needed?

(2 marks)

*They are sometimes broken down by the target cells, but are usually broken down in the liver or kidney (1), and excreted in the bile and urine.(1)*

10: Describe the process involved in stopping hormone secretion when no more hormone is needed.

(5 marks)

*Hormone levels or levels of other substances (1) are detected by the endocrine gland (1), which then stops producing that hormone (1) when levels are normal (1). This is called negative feedback.(1)*