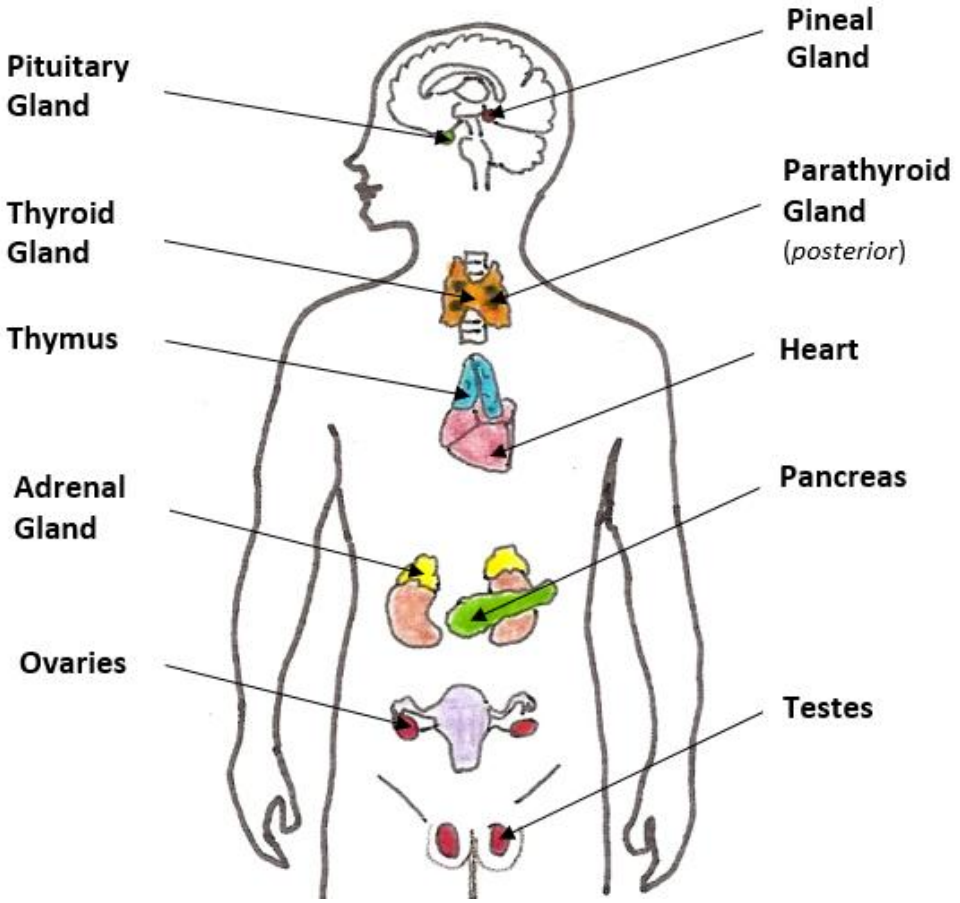
Name: _____

Physiology: Endocrine System Worksheet

Directions: Write in and circle best answer on this sheet.

Use this diagram to identify the various endocrine glands and structures and link them to each of the basic descriptive statements below:



A. _____ located in the throat; bi-lobed gland connected by an isthmus.

B. _____ found sitting on top of the kidneys.

C. _____ connected to the hypothalamus, it has a front and back portion.

D. _____ paired glands suspended in the scrotum outside of the body.

E. _____ small structures sitting on the posterior surface of the thyroid gland.

F. _____ found in the pelvic cavity of females, concerned with ova and estrogen.

G. _____ sits in the upper thorax overlying the heart.

H. _____ found in the center of the brain and shaped like a tiny pine cone.

I. _____ a mixed gland, located close to the stomach and small intestine.

J. _____ although not a primary endocrine gland, it releases ANP hormone.

1. The etymology of 'endocrine' comes from endo = _____, and -crine = _____, thus it loosely means _____.

2. The difference between 1° and 2° endocrine gland:

a) A **primary** endocrine gland is:

b) A **secondary** endocrine gland is:

3. What makes a cell a target for a specific hormone? _____.

4. Why is it necessary to stop hormone actions? _____.

5. The most common way to terminate a hormone's action is _____.

6. Define *half-life* as it applies to hormones. _____.

7. What are the **3 main types of hormones**? (Based on what they are *derived* from):
A) B) C)

8. Of the above 3 categories, the majority of hormones in the body are _____ hormones.

9. Can you think of a hormone that may take *months* to have its effects? _____.

10. Can you think of a hormone that only takes *seconds* to have its effects? _____.

11. Based on **solubility**, hormones belong to **2** groups: **1)** _____ and **2)** _____.

12. The _____ soluble hormones often act change DNA transcription in the nucleus.

13. The _____ soluble hormones bind to the plasma membrane because they cannot cross it.

Negative Feedback Loop Inhibition

Almost all hormones that are secreted are controlled by **negative feedback loops**. When a hormone level becomes elevated, persistently high levels will inhibit the production of it, resulting in a decline in its levels. The **hypothalamus** and **pituitary gland** are good examples of this type of control.

14. Another name for the anterior pituitary gland is _____.
15. What does this name mean and imply? _____.
16. Another name for the posterior pituitary gland is _____.
17. What does this name mean and imply? _____.
18. List the **6 hormones** released by the **anterior pituitary** gland, and their basic functions. (no abbreviaitons)

1)

2)

3)

4)

5)

6)

19. List the **2 hormones** released by the posterior pituitary gland, and their basic functions.

1)
2)

Table 1. Fill in the information about the hormone, gland or action that is compatible.

Hormone	**Secreted by**	**Actions**
Luteinizing Hormone (LH)		
	Posterior Pituitary (for water regulation)	
		Stimulates cortisol release. Stimulates growth of adrenal gland
Melatonin		
		Stimulates follicular growth in females; required for sperm production in males.
	Pancreas (α cells)	
Cortisol		
		Stimulates release of T_3 and T_4 and helps regulate metabolic rate.

Based on the information provided about these endocrine glands and their function, for each hormone in **Column A**, fill-in the appropriate endocrine gland from **Column A** that makes it. The various endocrine glands in **Column A** may be used more than once or not at all.

Column A

A. Kidneys
B. Pineal gland
C. Thymus
D. Neurohypophysis (Posterior pituitary)
E. Thyroid gland
F. Adrenal medulla
G. Gonads
H. Adenohypophysis (Anterior pituitary)
I. Adrenal cortex
J. Heart
K. Pancreas
L. Parathyroid glands

Column B

___ 1. LH
___ 2. Oxytocin
___ 3. DMT
___ 4. Prolactin
___ 5. PTH
___ 6. Renin
___ 7. T_4/T_3
___ 8. FSH
___ 9. thymosin
___ 10. TSH
___ 11. Melatonin
___ 12. Somatostatin
___ 13. Calcitonin
___ 14. Vasopressin
___ 15. hGH
___ 16. ANP
___ 17. Somatotropin
___ 18. Cortisol

20. If one hormone has an opposing action to another, this interaction is termed _____. Give a specific example, and what each hormone does:

21. If two hormones have similar effects and produce an amplified response, this is _____. Give a specific example, and what the hormones do:

22. If one hormone enhances the effect of another hormone secreted later, this is _____. Give a specific example, and what the hormones do:

23. The actual site of vasopressin synthesis occurs in the _____.

24. If too much bone growth occurs *after* the growth plates have fused together, then bones can no longer grow in length but instead widen & thicken. This happens when _____ is released in _____ amounts. In adults this disorder is called _____.

25. This results in increased metabolic rate, elevated heart rate, weight loss, sweating, high BP, and protruding eyeballs from _____ amounts of the hormone _____ released from the _____. The common name for this condition is _____ disease.

26. If too little of _____ is released or if its actions are blocked by alcohol, it will result in large volumes of dilute urine being voided from body, this is called _____.

27. If there is _____ secretion of this steroid hormone from the adrenal cortex, a _____ in blood glucose will occur, causing hypoglycemia and fatigue. The lack of ability to cause _____ results in low blood pressure. This condition is called _____disease.

28. If too much _____ is released by the adrenal cortex it results in_____ blood glucose and _____ muscle mass as proteins are catabolized. A name for this is _____ disease.

29. Most cells in the body require the hormone _____ in order to take up glucose from the blood stream. A lack of this hormone can result in hyperglycemia, glycosuria, polyuria and excessive thirst. This condition would be called _____.

30. The islets of Langerhans are structures in the _____. The hormone made by the alpha cells is _____, while the hormone made by the beta cells is _____.

31. Parathyroid hormone (PTH) is triggered to be released if _____ in the blood become too low. Primarily, the PTH acts on bone cells called _____. The activity of this sell is (increased/ decreased). This change then causes a(n) _____ in _____ of the blood.

32. The _____ are the primary reproductive organs. In general, the primary reproductive structure makes the _____, these are also known as the _____ cells for reproduction. Females have _____ and these make _____ cells. The males have _____ and these make _____ cells. The female sex hormones are _____ and _____, they are made by the _____. The male sex hormone is _____ and is made by the _____.

Multiple Choice and fill-in Questions – Select the best answer.

1. The majority of hormones in the body are
a) peptide hormones **b)** amino acid-derived hormones **c)** steroid hormones
d) neurohormones **e)** all of the hormones are present in equal amounts in the body

2. For ***adrenocorticotropic*** hormone, *cortico* means _____, and *tropic* means _____.
a) middle, and top **b)** medulla (inner), and growth **c)** cortex (outer), and growth
d) cortex (outer), and shrink **e)** medulla (inner), and growth

3. The hormone **cortisol** has which of the following effects on the body?
1. vasodilation of veins **2.** suppresses immune response **3.** stimulates gluconeogenesis
4. stimulates release of renin **5.** together with NE causes vasoconstriction
a) 2 and 5 **b)** 2, 3 and 5 **c)** 1, 2, 4 and 5 **d)** 1 and 4 **e)** 5 and 3

4. The two **antagonistic** hormones that regulate blood calcium level are:
a) growth hormone, and thyroid stimulating hormone **b)** insulin, and glucagon
c) aldosterone, and cortisone **d)** calcitonin and parathyroid hormone **e)** estrogen, and progesterone

5. Somatotrophs, gonadotrophs, and corticotrophs are associated with the
a) thyroid gland **b)** adenohypophysis **c)** parathyroid glands **d)** adrenal glands **e)** neurohypophysis

6. FSH in females promotes _____ secretion and stimulates _____.
a) progesterone; fat deposits **b)** estrogen; ovulation **c)** progesterone; ovulation
d) prolactin release; lactation **e)** estrogen; ovarian follicles

7. In terms of ***solubility***, hormones fall into two basic categories: _____ and _____.
a) stimulator and receptor hormones **b)** proteins and sugars **c)** growth and metabolic hormones
d) male hormones and female hormones **e)** water soluble and lipid soluble hormones

8. Which of the following hormones can normally **elevate blood glucose** levels?
1. epinephrine **2.** cortisol **3.** glucagon **4.** insulin **5.** growth hormone
a) 1, 2 and 3 **b)** 2 and 4 **c)** 1, 2, 3 and 5 **d)** 4 and 5 **e)** 3 and 5

9. The hormone that aids in sodium conservation in the body is:
a) aldosterone **b)** calcitonin **c)** ADH **d)** hydrocortisone **e)** calcitonin

10. Which of the following produce **testosterone**?
1. the adrenal medulla **2.** interstitial cells of Leydig **3.** the adrenal cortex **4.** the hypothalamus
5. the posterior pituitary gland **6.** the anterior pituitary gland
a) 2 only **b)** 2 and 4 **c)** 4, 3 and 6 **d)** 3 and 2 **e)** 2, 6 and 3