NAME _____ LAB TIME/DATE _____

REVIEW SHEET
exercise
4

Endocrine System Physiology

1. Match each of the hormones in the left hand column with its source.

_____ thyroxine	a. ovary
_____ estrogen	b. thyroid gland
_____ thyroid stimulating hormone (TSH)	c. pancreas
_____ insulin	d. pituitary gland

2. Each hormone is known to have a specific target tissue. For each of the following hormones, list its target tissue and describe its specific action.

thyroxine _____

estrogen _____

_____

thyroid stimulating hormone (TSH) _____

_____

insulin _____

_____

follicle stimulating hormone (FSH) _____

_____

3. What is the role of the hypothalamus in the production of thyroxine and TSH?

_____

_____

4. How does thyrotropin releasing hormone (TRH) travel from the hypothalamus to the pituitary gland?

_____

_____

5. What are *tropic* hormones?

6. In the metabolism experiment, what was the effect of thyroxine on the overall metabolic rate of the animals?

7. Using the respirometer-manometer, you observed the amount of oxygen being used by animals in a closed chamber. What happened to the carbon dioxide the animals produced while in the chamber?

8. **(a)** If the experimental animals in the chamber were engaged in physical activity (such as running in a wheel), how would this change the results of the metabolism experiment?

(b) What changes would you expect to see in fluid levels of the manometer?

9. Why didn't the administration of thyroid stimulating hormone (TSH) have any effect on the metabolic rate of the thyroidectomized rat?

10. Why didn't the administration of propylthiouracil have any effect on the metabolic rate of either the thyroidectomized rat or the hypophysectomized rat?

11. In the hormone replacement therapy experiment, what was the effect of removing the ovaries from the animals?

12. Specifically, what hormone did the ovariectomies effectively remove from the animals, and what purpose does this hormone serve?

13. If a hormone such as testosterone were used in place of estrogen, would any effect be seen? Explain your answer.

14. In the experiment, you administered seven injections of estrogen to the experimental rat over the course of 7 days. What do you think would happen if you administered one injection of estrogen per day for an additional week?

15. What do you think would happen if you administered seven injections of estrogen to the experimental rat all in one day?

16. In a wet lab, why would you need to wait several weeks after the animals underwent their ovariectomies before you could perform this experiment on them?

17. In the insulin and diabetes experiment, what was the effect of administering alloxan to the experimental animal?

18. **(a)** When insulin travels to the cells of the body, the concentration of what compound will elevate within the cells?

(b) What is the specific action of this compound, within the cells?

19. Fill in the blanks:

(a) The condition when insulin is not produced by the pancreas:

(b) The condition when insulin is produced by the pancreas, but the body fails to respond to the insulin:

20. What was the effect of administering insulin to the diabetic rat?

21. What is a glucose standard curve, and why did you need to obtain one for this experiment?

22. Would altering the light wavelength of the spectrophotometer have any bearing on the results obtained? Explain your answer.

23. What would you do to help a friend who had inadvertently taken an overdose of insulin? Why?