1. A hormone is a ______ and the target cell is __________.
   A. protein that stimulates other cells; the source of hormone secretions
   B. regulatory molecule that controls secretions of other cells; a cell that synthesizes hormones
   C. molecule that has a metabolic effect on another cell; a cell that has receptors for specific hormones
   D. molecule; a cell that does not have receptors

2. Secretions that affect only nearby cells are termed
   A. endocrine.
   B. paracrine.
   C. exocrine.
   D. autocrine.

3. Exocrine glands differ from endocrine glands in that exocrine glands
   A. secrete only into the bloodstream.
   B. secrete only local hormones.
   C. secrete through ducts or tubes to the body's exterior.
   D. only secrete salts.

4. A sweat gland is an example of a(n) ______ gland.
   A. exocrine
   B. paracrine
   C. endocrine
   D. autocrine

5. "Endocrine" means
   A. hormone synthesis.
   B. internal secretion.
   C. acts upon target cells.
   D. fast-acting compound.
6. The specificity of hormone action derives from
A. target cell receptors that are unique for each hormone.
B. target cell receptors that are unique for all steroid hormones.
C. target cell receptors that are unique for all nonsteroid hormones.
D. target cell receptors that bind only certain neurotransmitters.

7. Hormones
A. regulate metabolism.
B. have functions in growth, reproduction, and development.
C. help regulate water and electrolyte balance and blood pressure.
D. do all of the above.

8. Compared to the nervous system, the endocrine system
A. does not use receptors.
B. may have a longer lasting effect.
C. takes only seconds.
D. is not essential to life.

9. All hormones are
A. steroids.
B. proteins.
C. inorganic compounds.
D. organic compounds.

10. Steroid hormones
A. are soluble in lipids.
B. combine with protein receptor molecules.
C. cause messenger RNA synthesis.
D. all of the above.

11. Nonsteroid hormones cause _________________ in their target cells.
A. cyclic AMP to become ATP
B. cyclic AMP to be decomposed
C. activation of adenylate cyclase
D. inactivation of adenylate cyclase
12. A nonsteroid hormone acts on a target cell by
A. causing synthesis of a second messenger.
B. stimulating cell division.
C. promoting phagocytosis.
D. directly causing protein synthesis.

13. A steroid hormone acts on a target cell by
A. causing a second messenger to be formed.
B. causing the cell to divide.
C. promoting phagocytosis.
D. directly causing protein synthesis.

14. Hormones that the posterior pituitary secretes are synthesized in the
A. posterior pituitary.
B. hypothalamus.
C. thalamus.
D. anterior pituitary.

15. An upregulated cell has an increase in
A. the amount of DNA in the nucleus.
B. the number of molecules the cell secretes.
C. the concentration of ligands that bind to the receptors.
D. the number of receptors available for binding.

16. Upregulation of a target cell can occur in response to
A. prolonged decrease in the level of a hormone.
B. prolonged increase in the level of a hormone.
C. signals from antagonistic hormone products.
D. signals from the posterior pituitary.

17. Down-regulation of a target cell can occur in response to
A. prolonged decrease in the level of a hormone.
B. prolonged increase in the level of a hormone.
C. signals from antagonistic hormone products.
D. signals from the posterior pituitary.
18. ________ controls hormone concentrations.
A. Positive feedback
B. Negative feedback
C. Muscle contraction
D. Exposure to sun

19. Tropic hormones
A. only function in the tropics.
B. function in only one sex.
C. stimulate certain endocrine glands to secrete hormones.
D. block the actions of hormones that endocrine glands secrete.

20. Nerve fibers in the posterior lobe of the pituitary gland secrete
A. thyroid-stimulating hormone.
B. adrenocorticotropic hormone.
C. growth hormone.
D. antidiuretic hormone.

21. Growth hormone
A. enhances the movement of amino acids into cells.
B. increases the rate of protein synthesis.
C. increases the rate of fat metabolism.
D. all of the above.

22. Which of the following hormones primarily affects the reproductive organs?
A. Follicle-stimulating hormone
B. Adrenocorticotropic hormone
C. Prolactin-releasing factor
D. Growth hormone

23. Target cells for releasing hormones are in the
A. hypothalamus.
B. anterior pituitary gland.
C. posterior pituitary gland.
D. thyroid gland.
24. The blood concentration of growth hormone
A. rises in females after menopause.
B. varies greatly in males during adulthood.
C. drops at puberty and rises after adolescence.
D. rises at puberty and levels off after adolescence.

25. Jerry drinks a few beers and soon has to urinate. The alcohol has
A. inhibited secretion of ADH.
B. stimulated secretion of ADH.
C. inhibited secretion of ACTH.
D. stimulated secretion of ACTH.

26. Diabetes insipidus is caused by
A. insulin deficiency.
B. excess insulin.
C. ADH deficiency.
D. excess ADH.

27. Oxytocin is administered to women following childbirth to stimulate
A. less milk production.
B. uterine contractions.
C. uterine relaxation.
D. ACTH production.

28. ADH and oxytocin are secreted by
A. neuromuscular cells.
B. neurons.
C. neuroglia.
D. neurosecretory cells.

29. Growth hormone signals the release of IGF-1 from the
A. pancreas.
B. liver.
C. spleen.
D. pituitary gland.
30. Which of the following statements is correct with respect to $T_3$ and $T_4$?
A. $T_4$ has a higher free concentration in the plasma.
B. $T_4$ is more important physiologically.
C. About one third of $T_4$ is converted to $T_3$ in peripheral tissues.
D. $T_4$ is more potent.

31. Maxwell has a very high metabolic rate, is skinny, and has protruding eyes. These are symptoms of
A. hypothyroidism.
B. hyperthyroidism.
C. hypoparathyroidism.
D. hyperparathyroidism.

32. Graves disease, the most common form of hyperthyroidism, is caused by
A. a lack of iodine.
B. an excess of iodine.
C. an improper diet.
D. an autoimmune disorder.

33. Thyroxine
A. reduces the rate at which carbohydrates are utilized.
B. enhances the rate at which proteins are synthesized.
C. inhibits responses of the nervous system.
D. inhibits the rate at which calcium enters body fluids.

34. Simple goiter is most prevalent where the soil lacks
A. organic matter.
B. vitamins.
C. iodine.
D. potassium.

35. Infantile hypothyroidism results from
A. a deficiency of thyroid hormones at birth.
B. hyperthyroidism in an adult.
C. hypothyroidism in an adult.
D. lack of prolactin.
36. Hyperparathyroidism  
A. stimulates excessive osteoclast activity, softening bones.  
B. is most often caused by a tumor.  
C. increases risk of spontaneous fractures.  
D. all of the above.

37. In addition to a drop in blood calcium concentration, a symptom of hypoparathyroidism is  
A. a rise in vitamin D concentration.  
B. increased PTH secretion.  
C. muscle cramps.  
D. kidney stones.

38. The secretion of parathyroid hormone is controlled primarily by the  
A. hypothalamus.  
B. concentration of blood calcium.  
C. thyroid gland.  
D. pituitary gland.

39. The hormone that stimulates calcium deposition into bone is  
A. calcitonin.  
B. parathyroid hormone.  
C. thyroxine.  
D. insulin.

40. A hormone that the adrenal medulla secretes is  
A. mineralocorticoid.  
B. glucocorticoid.  
C. aldosterone.  
D. none of the above.

41. Aldosterone promotes the homeostasis of ions by causing the kidneys to  
A. conserve sodium and excrete potassium.  
B. excrete sodium and conserve potassium.  
C. excrete sodium and potassium.  
D. conserve sodium and potassium.
42. Cortisol
   A. increases the permeability of capillary walls.
   B. increases the permeability of lysosomal membranes.
   C. stimulates the production of glucose from noncarbohydrates.
   D. promotes the storage of amino acids in the form of proteins.

43. Hormones from the adrenal medulla increase
   A. blood pressure.
   B. heart rate.
   C. breathing rate.
   D. all of the above.

44. Hyposcretion of hormones from the adrenal cortex leads to
   A. Cushing syndrome.
   B. Addison disease.
   C. buffalo hump.
   D. moon face.

45. Addison disease
   A. lowers blood pressure.
   B. decreases blood sodium levels.
   C. increases blood potassium levels.
   D. all of the above.

46. Cushing syndrome
   A. is caused by hypersecretion of cortical hormones.
   B. decreases tissue protein.
   C. elevates sodium concentrations.
   D. all of the above.

47. Secretion of insulin causes
   A. a decrease in the concentration of blood glucose.
   B. a decrease in the permeability of cell membranes to glucose.
   C. an increase in the breakdown of glycogen to release glucose.
   D. an increase in the concentration of blood glucose.
48. Secretion of glucagon causes
A. an increase in the formation of fat.
B. an increase in the permeability of the cell membrane to glucose.
C. an increase in the concentration of blood glucose.
D. an increase in glycogen.

49. Which of the following has both endocrine and exocrine functions?
A. Pancreas
B. Anterior pituitary
C. Liver
D. Thyroid gland

50. The pineal gland is
A. located in the thyroid gland.
B. attached to an adrenal gland.
C. attached to the thalamus.
D. found along with digestive tissue in the pancreas.

51. The hormone that the pineal gland secretes is
A. melanoma.
B. melatonin.
C. myostatin.
D. beta endorphin.

52. As a result of the general stress response, blood concentrations of epinephrine
A. rise and cortisol fall.
B. fall and cortisol rise.
C. and cortisol rise.
D. and cortisol fall.

53. A person who is stressed usually has increased
A. activity of the spleen and other lymphatic organs.
B. number of lymphocytes in the blood.
C. resistance to infections.
D. blood pressure.
54. With age,
A. levels of GH increase but of ADH decrease.
B. levels of GH decrease but of ADH increase.
C. levels of GH and ADH both decrease.
D. levels of GH and ADH both increase.

55. Athletes abuse erythropoietin (EPO) because this hormone
A. decreases the number of red blood cells.
B. increases the number of white blood cells.
C. increases the number of red blood cells.
D. adds protein to plasma.

56. Irving, who is 78 years old, takes human growth hormone supplements to regain the strength of his youth. He may be disappointed, because the hormone has been shown only to
A. increase the red blood cell supply.
B. decrease fat and increase muscle mass, but not improve strength.
C. make him urinate more often.
D. increase his risk of cancer.

57. In diabetes mellitus,
A. fatty acids and ketone bodies accumulate in the blood if untreated.
B. insulin must be taken or drugs given that help the body to utilize insulin.
C. the pancreas cannot produce insulin or the body cannot respond to it.
D. all of the above.

58. Type 1 diabetes mellitus is caused by
A. excess sugar in the diet.
B. obesity.
C. a disorder of the immune system.
D. an effect of aging.

59. Diabetes mellitus results in
A. protein in the urine.
B. urine with high osmotic pressure.
C. reduced urinary output.
D. low blood sugar.
60. Type 2 diabetes mellitus results from
A. a deficiency of insulin.
B. insensitivity of cells to insulin.
C. a deficiency of insulin and insensitivity of cells to insulin.
D. an infection.

61. A hormone is a secreted molecule that is carried in the bloodstream to where it acts on target cells that bear specific receptors for that hormone.
   True    False

62. An autocrine secretion affects cells far away.
   True    False

63. The nervous system releases hormones at synapses and the endocrine system releases neurotransmitters into the bloodstream.
   True    False

64. Nonsteroid hormones include peptides, proteins, glycoproteins, and amines.
   True    False

65. Steroid hormones diffuse through cell membranes, then bind with receptors, whereas nonsteroid hormones bind receptors on the target cell membrane.
   True    False

66. A tropic hormone prevents endocrine glands from releasing their hormones, thereby maintaining homeostasis.
   True    False

67. The target cells of releasing hormones are in the anterior pituitary gland.
   True    False
68. The thalamus controls secretion of pituitary hormones.  
True  False

69. Oxytocin stimulates the kidneys to conserve water. 
True  False

70. Parathyroid hormone stimulates the activity of bone-resorbing osteoblasts.  
True  False

71. Cells of the adrenal medulla are closely associated with preganglionic fibers of the parasympathetic division of the autonomic nervous system.  
True  False

72. The hormones secreted by the adrenal medulla are amines.  
True  False

73. The sex hormones from the adrenal cortex are primarily androgens.  
True  False

74. Glucagon is also called hypoglycemic factor.  
True  False

75. A person under stress may have a lowered resistance to infection.  
True  False

76. _______ secretions affect the cell that secretes them.  
________________________________________
77. The nervous system releases neurotransmitters into synapses. In contrast, the endocrine system releases _______ into the bloodstream.

78. Adenylate cyclase causes ATP molecules to become _____ _____ molecules.

79. A hormone whose effects last a long time has a ____ half-life.

80. The hormone that stimulates the release of growth hormone is called _____ _____ - _____ _____.

81. The thyroid gland has a special ability to remove the element _____ from the blood.

82. The pancreas functions as part of the endocrine system and as a part of the _____ system.

83. The _____ gland is located deep between the cerebral hemispheres attached to the roof of the third ventricle.

84. The condition produced by factors that tend to cause changes in the body's internal environment and threaten its survival is called ______.

85. Paracrine substances called _____ have powerful, regulating effects on cellular responses to hormones.