



11 February 2 Spring 2016, questions and answers

Human Physiology I (Florida International University)



Chapter 11
Endocrine Glands: Secretion and Action of Hormones

True / False Questions

1. Endocrine glands secrete their products into ducts.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

2. Biologically active molecules in the blood are called hormones.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

3. The neurons from the hypothalamus secrete chemicals called neurohormones.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

4. Dual glands, like the pancreas, have both endocrine and exocrine functions.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

5. Most lipid-soluble hormones are derived from cholesterol.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

6. Polypeptide hormones are synthesized from tyrosine and tryptophan.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

7. Melatonin can pass through plasma membranes since it is derived from the nonpolar amino acid tryptophan.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

Multiple Choice Questions

8. Those hormones that are nonpolar can pass through the plasma membrane and are called

A. hydrophilic.

B. hydrophobic.

C. lipophilic.

D. Both hydrophobic and lipophilic are correct.

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

True / False Questions

9. Polypeptide and glycoprotein hormones can be taken orally.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

Multiple Choice Questions

10. Which of the following is NOT a polypeptide or glycoprotein hormone
- A. cortisol
 - B. glucagon
 - C. antidiuretic hormone
 - D. parathyroid hormone

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

True / False Questions

11. Most polypeptide and protein hormones are synthesized as prohormones.
TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

Multiple Choice Questions

12. Which of the following is the most senior precursor molecule?

- A. a prehormone
- B. a prohormone
- C. a hormone
- D. a hormone receptor

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

13. Molecules secreted by endocrine glands that are inactive until changed by their target cells are

- A. prohormones.
- B. lipophilic hormones.
- C. prehormones.
- D. tissue hormones.

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

True / False Questions

14. Responsiveness of cells to hormones is determined by the presence or absence of specific hormone receptor proteins.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

Multiple Choice Questions

15. Which of the following is NOT true about a chemical functioning in physiological regulation

- A. There must be a mechanism to turn off the chemical's action.
- B.** The chemicals must be secreted by endocrine glands.
- C. Target cell must have specific receptor molecules for the chemical.
- D. The combination of the chemical and its receptor must cause specific changes to occur in the target cell.

Blooms Level: 1. Remember

Learning Outcome: 11.01

Section: 11.01

Topic: Endocrine System

16. Hormones which enhance the responsiveness of a target organ to a second hormone have

- A. complementary effects.
- B. synergistic effects.
- C. antagonistic effects.
- D.** permissive effects.

Blooms Level: 1. Remember

Learning Outcome: 11.02

Section: 11.01

Topic: Endocrine System

17. When two or more hormones work together to produce a particular result, their effects are
- A. permissive.
 - B. antagonistic.
 - C. synergistic.**
 - D. inhibitory.

Blooms Level: 1. Remember

Learning Outcome: 11.02

Section: 11.01

Topic: Endocrine System

True / False Questions

18. A chronically high hormone concentration often leads to an increased receptor number.
FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.02

Section: 11.01

Topic: Endocrine System

Multiple Choice Questions

19. Small amounts of a polypeptide or glycoprotein hormone may cause
- A. upregulation of receptors.
 - B. increased numbers of receptors placed in the plasma membrane.
 - C. the priming effect.
 - D.** All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.02

Section: 11.01

Topic: Endocrine System

True / False Questions

20. Many polypeptide and glycoprotein hormones are secreted in discrete bursts called pulsatile secretions.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.02

Section: 11.01

Topic: Endocrine System

Multiple Choice Questions

21. Testosterone receptors would be _____ in response to anabolic steroid abuse
- A. inhibited
 - B. primed
 - C. upregulated
 - D.** downregulated

Blooms Level: 1. Remember

Learning Outcome: 11.02

Section: 11.01

Topic: Endocrine System

True / False Questions

22. Pharmacological concentrations of hormones causes normal tissue responses.
FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.02

Section: 11.01

Topic: Endocrine System

23. Water-soluble hormones bind to receptors located within the plasma membrane.
TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

24. Hormone receptors have a high capacity and a low affinity.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

25. Lipophilic hormones interact with receptors that are transcription factors.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

26. Lipophilic hormones and thyroid hormone are transported to their target cells free in the plasma.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

Multiple Choice Questions

27. Nuclear receptors that have been identified and their genes cloned, but their hormone ligands are unknown are called

- A. transcription factors.
- B. unknown ligands.
- C. orphan receptors.**
- D. nongenomic receptors.

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

28. Thyroid hormones bind to receptors which

- A. activate tyrosine kinase.
- B. regulate gene transcription.**
- C. stimulate production of cyclic AMP.
- D. stimulate production of diacylglycerol.

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

29. To induce full cellular effects, thyroid hormones also require the actions of

- A. adrenocorticotropin.
- B. melatonin.
- C. 9-cis-retinoic acid.**
- D. somatomedins.

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

30. Steroid hormone receptors may be found
- A. in the cytoplasm.
 - B. in the nucleus.
 - C. on the cell surface.
 - D.** Both in the cytoplasm and in the nucleus.

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

True / False Questions

31. Lipophilic hormones travel in the blood bonded to carrier proteins.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

Multiple Choice Questions

32. Steroid hormone influence on gene expression is known as
A. genomic action.
B. nongenomic action.
C. dimerization.
D. translocation.

Blooms Level: 1. Remember
Learning Outcome: 11.03
Section: 11.02
Topic: Endocrine System

33. Which of the following is a selective estrogen receptor modulator?
A. tamoxifen.
B. raloxifene.
C. progesterone.
D. Both tamoxifen and raloxifene.

Blooms Level: 1. Remember
Learning Outcome: 11.03
Section: 11.02
Topic: Endocrine System

34. Carrier proteins would be required by
A. aldosterone.
B. cholecystokinin.
C. follicle stimulating hormone.
D. prolactin.

Blooms Level: 2. Understand
Learning Outcome: 11.03
Section: 11.02
Topic: Endocrine System

35. The process of two steroid hormones binding to their nuclear receptors at two half-sites on DNA to initiate transcription is called

- A. synergism.
- B. antagonism.
- C. translocation.
- D. dimerization.**

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

36. Steroid hormone receptors form a _____ on their DNA half-sites.

- A. homodimer**
- B. autodimer
- C. pseudodimer
- D. heterodimer

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

37. Thyroid hormone receptor proteins are found

- A. on the plasma membrane.
- B. in the cytoplasm.
- C. in the nucleus.**
- D. All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

38. Thyroid hormone receptors form a ____ on their DNA half-sites.
- A. homodimer
 - B. autodimer
 - C. pseudodimer
 - D. heterodimer**

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

39. Proteins that must bind to a nuclear receptor protein that aids in its activation are called
- A. homodimers.
 - B. corepressors.
 - C. orphan receptors.
 - D. coactivators.**

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

40. How is most thyroid hormone transported in the plasma?
- A. as T₄ bonded to globulin**
 - B. as T₃ bonded to globulin
 - C. as free T₄
 - D. as free T₃

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

True / False Questions

41. All protein-bound T₄ is released to enter the target cells.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

42. Plasma levels of protein-bound thyroxine fluctuate greatly in response to the body's use of thyroxine.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.03

Section: 11.02

Topic: Endocrine System

Multiple Choice Questions

43. Which of the following is NOT a second messenger system activated by lipophobic hormones?

- A.** 9-cis-retinoic acid
- B. tyrosine kinase
- C. adenylyate cyclase
- D. phospholipase C

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

True / False Questions

44. Inhibition of phosphodiesterase would potentially increase the effects of hormones that activate adenylate cyclase.

TRUE

Blooms Level: 2. Understand

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

45. Caffeine raises intracellular cAMP concentrations by inhibiting phosphodiesterase.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

Multiple Choice Questions

46. Viagra is a drug that creates penile erection by
A. indirectly decreasing the breakdown of cGMP.
B. indirectly increasing cGMP production.
C. directly decreasing nitric oxide levels.
D. directly increasing nitric oxide levels.

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

47. cAMP activates _____ that activates other enzymes in the cell.

- A.** protein kinase
- B. calcium
- C. calmodulin
- D. tyrosine kinase

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

True / False Questions

48. G-proteins are needed to directly stimulate the activation of protein kinase.

FALSE

Blooms Level: 2. Understand

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

Multiple Choice Questions

49. Protein kinase catalyzes the _____ of other enzymes in the cytoplasm.
- A. hydrolysis
 - B. phosphorylation**
 - C. synthesis
 - D. decarboxylation

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

True / False Questions

50. Epinephrine can act through two second-messenger systems (cAMP and Ca^{2+}).
- TRUE**

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

Multiple Choice Questions

51. Binding of epinephrine to beta-adrenergic receptors in the plasma membrane will activate the _____ second messenger system.
- A. calcium
 - B. IP₃
 - C. adenylate cyclase (cAMP)**
 - D. DAG

Blooms Level: 1. Remember
Learning Outcome: 11.04
Section: 11.02
Topic: Endocrine System

True / False Questions

52. Inhibition of G-proteins would cause an increase in hormone-induced intracellular Ca²⁺ concentrations.
- FALSE**

Blooms Level: 2. Understand
Learning Outcome: 11.04
Section: 11.02
Topic: Endocrine System

Multiple Choice Questions

53. Mutation of the calmodulin gene would alter the ability of _____ to act as a second messenger.

- A. calcium
- B. sodium
- C. potassium
- D. cAMP

Blooms Level: 2. Understand

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

54. Second messengers generated by the actions of phospholipase C

- A. are inhibited by the actions of caffeine.
- B. are stimulated by phosphodiesterases.
- C. may activate calmodulin.
- D. stimulate gene transcription.

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

True / False Questions

55. Activated calmodulin will, in turn, activate protein kinases.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

Multiple Choice Questions

56. In the phospholipase C mechanism, most of the increased intracellular calcium comes from
- A. outside the cell.
 - B. within the plasma membrane.
 - C.** the endoplasmic reticulum.
 - D. extracellular fluid.

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

57. Which of the following directly initiates the release of calcium ions from the endoplasmic reticulum?
- A. G-proteins
 - B. phospholipase C
 - C.** inositol triphosphate (IP₃)
 - D. calmodulin

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

58. Many growth factors use
- A. cyclic AMP as a second messenger.
 - B.** tyrosine kinase as a second messenger.
 - C. calmodulin as a second messenger.
 - D. cyclic GMP as a second messenger.

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

59. Cellular actions of insulin could be inhibited by
- A. decreasing intracellular calmodulin.
 - B. stimulating protein kinase activity.
 - C. inhibiting translation.
 - D.** inhibiting receptor phosphorylation.

Blooms Level: 2. Understand

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

60. What is the action of the signaling molecules activated by the insulin-tyrosine kinase second messenger system?
- A.** insertion of glucose carrier proteins into the plasma membrane
 - B. hydrolysis of glycogen and secretion of glucose
 - C. transport of insulin into the cell
 - D. All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.04

Section: 11.02

Topic: Endocrine System

True / False Questions

61. Adenohypophyseal function is regulated by the hypothalamus.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

62. The anterior pituitary gland is also called the neurohypophysis.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

63. The posterior pituitary gland produces two hormones.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

64. Protein synthesis is usually stimulated when luteinizing hormone binds to its receptor.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

65. Prolactin injections may be used to induce labor.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

66. Inhibition of luteinizing hormone secretion would inhibit testosterone synthesis.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

67. Pituitary dwarfism is caused by growth years hyposecretion of growth hormone.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

68. Oxytocin synthesis occurs in the neurohypophysis.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

Multiple Choice Questions

69. Cortisol secretion would cease if the _____ no longer secreted ACTH.

A. posterior pituitary gland

B. hypothalamus

C. anterior pituitary gland

D. adrenal cortex

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

70. Adrenocorticotrophic hormone is synthesized in cells that had been part of the

A. the pars distalis.

B. the pars tuberalis.

C. the pars intermedia.

D. the neurohypophysis.

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

71. The vascular link between the hypothalamus and the _____ is called the hypothalamo-hypophyseal portal system.

- A. posterior pituitary
- B.** anterior pituitary
- C. pineal gland
- D. thalamus

Blooms Level: 1. Remember

Learning Outcome: 11.06

Section: 11.03

Topic: Endocrine System

True / False Questions

72. Elevated secretion of ACTH, as in Addison's disease, causes a darkening of the skin because ACTH is related to MSH which causes production of the pigment melanin.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

Multiple Choice Questions

73. Growth would be inhibited by
- A. increasing prolactin secretion.
 - B.** increasing somatostatin secretion.
 - C. increasing somatomedin secretion.
 - D. increasing thyroid hormone secretion.

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

74. Regulation of mineral homeostasis would be inhibited due to decreased secretion of
- A.** corticotropin releasing hormone.
 - B. dopamine.
 - C. gonadotropin releasing hormone.
 - D. growth hormone releasing hormone.

Blooms Level: 2. Understand

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

75. Increased circulating concentrations of testosterone would stimulate
- A. decreased secretion of growth hormone.
 - B. decreased secretion of adrenocorticotropin.
 - C.** decreased secretion of luteinizing hormone.
 - D. decreased secretion of thyroid stimulating hormone.

Blooms Level: 2. Understand

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

True / False Questions

76. The hypothalamus, anterior pituitary gland, and the various target glands control the functions of each other, so there is no "master gland."

TRUE

Blooms Level: 2. Understand

Learning Outcome: 11.06

Section: 11.03

Topic: Endocrine System

Multiple Choice Questions

77. Most target organ control on the anterior pituitary gland is due to

A. positive feedback effect.

B. negative feedback.

C. negative feedback inhibition.

D. positive feedback inhibition.

Blooms Level: 1. Remember

Learning Outcome: 11.07

Section: 11.03

Topic: Endocrine System

True / False Questions

78. Pheromones act through the gustatory sense to modify the physiology or behavior of another member of the same species.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.07

Section: 11.03

Topic: Endocrine System

79. Higher brain centers can influence pituitary secretions and therefore the target organ through the pituitary-target organ axis.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.07

Section: 11.03

Topic: Endocrine System

Multiple Choice Questions

80. What is the function of prolactin in females?

- A.** stimulates milk production in the mammary glands
- B. regulates the gonadotropins
- C. regulates water and electrolyte balance in the kidneys
- D. All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

81. What is the function of prolactin in males?
- A. stimulates growth of sperm cells
 - B. stimulates milk production in the mammary glands
 - C.** regulates water and electrolyte balance in the kidneys
 - D. None apply.

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

82. What is the cause of pituitary cachexia?
- A. over-secretion of growth hormone in adults
 - B. over-secretion of prolactin in adults
 - C.** deficiency of growth hormone in adults
 - D. deficiency of growth hormone in children

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

83. What is the function of antidiuretic hormone (ADH)?
- A. stimulates loss of water by the kidneys
 - B. causes large urine volume
 - C. causes a darkening of the skin
 - D.** stimulates retention of water by the kidneys

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

84. Over-secretion of growth hormone in children causes
- A. acromegaly.
 - B. pituitary cachexia.
 - C. gigantism.**
 - D. myxedema.

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

85. Where is oxytocin produced?
- A. hypothalamus**
 - B. pineal gland
 - C. anterior pituitary gland
 - D. posterior pituitary gland

Blooms Level: 1. Remember

Learning Outcome: 11.06

Section: 11.03

Topic: Endocrine System

86. What hormone stimulates uterine contractions during labor and milk-ejection during lactation?
- A. prolactin
 - B. ADH
 - C. oxytocin**
 - D. luteinizing hormone

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

87. What is the function of the hypothalamo-hypophyseal tract?

- A. transports releasing hormones from the hypothalamus to the anterior pituitary
- B. transports nerve impulse from the hypothalamus to the anterior pituitary
- C.** transports hormones and nerve impulses from the hypothalamus to the posterior pituitary
- D. All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.06

Section: 11.03

Topic: Endocrine System

True / False Questions

88. A deficiency of dopamine would allow the production of prolactin.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.05

Section: 11.03

Topic: Endocrine System

Multiple Choice Questions

89. The _____ has a medulla derived from ectoderm and a cortex derived from mesoderm.

- A.** adrenal gland
- B. pancreas
- C. thyroid gland
- D. pituitary gland

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

True / False Questions

90. The zona glomerulosa of the adrenal cortex secretes the mineralocorticoids.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

Multiple Choice Questions

91. Which of the following is NOT one of the three functional categories of corticosteroids?
- A. mineralocorticoids
 - B. glucocorticoids
 - C. thyrocorticoids**
 - D. sex steroids

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

92. _____ is a potent mineralocorticoid that helps increase blood volume and pressure.
- A. Antidiuretic hormone
 - B. Aldosterone**
 - C. Hydrocortisone
 - D. Norepinephrine

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

93. What is the precursor molecule for the three types of adrenal cortex hormones
- A. vitamin A
 - B. vitamin K
 - C. adenosine
 - D. cholesterol**

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

94. The adrenal cortex is NOT involved in
- A. regulation of blood glucose.
 - B. regulation of Na⁺ balance.
 - C.** regulation of Ca²⁺ balance.
 - D. regulation of reproduction.

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

95. The hypersecretion of corticosteroids results in
- A. Addison's disease.
 - B. diabetes insipidus.
 - C. Grave's disease.
 - D.** Cushing's disease.

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

96. The hyposecretion of glucocorticoids and mineralocorticoids results in
- A.** Addison's disease.
 - B. diabetes insipidus.
 - C. Grave's disease.
 - D. Cushing's disease.

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

97. Which of the following is NOT a symptom of Addison's disease?

- A. skin discoloration (bronzing)
- B. hyperglycemia**
- C. hypotension
- D. sodium and potassium imbalances

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

98. A tumor of the _____ referred to as a pheochromocytoma.

- A. adrenal cortex
- B. adrenal medulla**
- C. thyroid gland
- D. pineal gland

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

99. Pheochromocytomas would stimulate

- A. hypersecretion of aldosterone.
- B. hypersecretion of cortisol.
- C. hypersecretion of adrenocorticotropin.
- D. hypersecretion of epinephrine and norepinephrine.**

Blooms Level: 2. Understand

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

True / False Questions

100. Adrenal medulla hormones prolong the effects of sympathetic nerves.

TRUE

Blooms Level: 2. Understand

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

Multiple Choice Questions

101. Which of the following is NOT one of the three stages in the response to stress?

A. stage of exhaustion

B. alarm reaction

C. stage of denial

D. stage of resistance

Blooms Level: 1. Remember

Learning Outcome: 11.09

Section: 11.04

Topic: Endocrine System

102. Prolonged stress may stimulate
- A. symptoms similar to Cushing's syndrome.
 - B. increased resistance to disease.
 - C. adrenal gland atrophy.
 - D. no apparent physiological changes.

Blooms Level: 2. Understand

Learning Outcome: 11.09

Section: 11.04

Topic: Endocrine System

103. Which of the following is NOT a response of the body to stress?
- A. increased secretion of ACTH
 - B. increased secretion of glucocorticoids
 - C. increased immune response**
 - D. increased secretion of epinephrine and norepinephrine

Blooms Level: 1. Remember

Learning Outcome: 11.09

Section: 11.04

Topic: Endocrine System

104. Which of the following is NOT an action of aldosterone secretion?
- A. raises blood glucose levels**
 - B. stimulates kidneys to retain Na^+
 - C. causes loss of K^+ in urine
 - D. an increase in blood volume and pressure

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

105. Which of the following is NOT an action of cortisol secretion?
- A. stimulates gluconeogenesis
 - B. lowers blood levels of free fatty acids**
 - C. promotes lipolysis
 - D. inhibits glucose utilization

Blooms Level: 1. Remember

Learning Outcome: 11.08

Section: 11.04

Topic: Endocrine System

106. What is NOT an effect of taking exogenous glucocorticoids?

- A. increased immune response
- B. hyperglycemia and decreased glucose tolerance
- C. decreased inflammation
- D. osteoporosis

Blooms Level: 1. Remember

Learning Outcome: 11.09

Section: 11.04

Topic: Endocrine System

107. What controls release of corticoids from the adrenal cortex?

- A. higher brain centers
- B. CRH from the hypothalamus
- C. ACTH from the anterior pituitary
- D. All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.09

Section: 11.04

Topic: Endocrine System

True / False Questions

108. A tumor stimulating oversecretion of hormones by the thyroid gland would cause plasma Ca^{2+} to increase.

FALSE

Blooms Level: 2. Understand

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

109. A deficiency of dietary iodine would result in excessive TSH secretion.

TRUE

Blooms Level: 2. Understand

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

Multiple Choice Questions

110. A(n) _____ is an abnormal growth of the thyroid gland due to an iodine deficiency.

A. tumor

B. goiter

C. abscess

D. keloid

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

111. Hypothyroidism in adults causes

A. Grave's disease.

B. myxedema.

C. cretinism.

D. Cushing's disease

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

112. _____ can form a goiter due to the presence of autoantibodies that exert TSH-like effects on the thyroid.

- A.** Grave's disease
- B. Myxedema
- C. Cretinism
- D. Cushing's disease

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

113. A child with _____ would be lethargic, shorter than average, have mental retardation, and a low body temperature.

- A. Grave's disease
- B.** cretinism
- C. dwarfism
- D. Addison's disease

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

114. Which of the following is an effect of hyperthyroidism?

- A. accelerated growth
- B. rapid pulse
- C. increased plasma T₄ levels
- D.** All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

115. An individual with bulging eyes may
- A. be secreting inadequate thyroid hormone.
 - B.** be secreting excessive thyroid hormone.
 - C. be secreting inadequate cortisol.
 - D. be secreting excessive cortisol.

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

116. What element is necessary for production of thyroxine?
- A. sodium
 - B. calcium
 - C.** iodine
 - D. chlorine

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

117. What amino acid of the protein colloid in thyroid follicles does iodine bind to?
- A. threonine
 - B. serine
 - C.** tyrosine
 - D. alanine

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

118. What is the protein found in the colloid of a thyroid follicle?

- A.** thyroglobulin
- B. gammaglobulin
- C. iodoglobulin
- D. betaglobulin

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

119. What is produced when two diiodotyrosine molecules couple together?

- A. triiodothyronine
- B. tetriodothyronine
- C. thyroxine
- D.** Both tetraiodotyronine and thyroxine are correct.

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

120. What does the release of TSH from the anterior pituitary cause?

- A. thyroid follicle cells produce MIT and DIT
- B. thyroid follicle cells produce calcitonin
- C.** thyroid follicle cells take up a small amount of colloid, hydrolyze T_3 and T_4 , and release them into the blood
- D. thyroid follicle cells oxidize iodide ions to iodine

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

True / False Questions

121. Calcitonin and PTH are antagonistic hormones.

TRUE

Blooms Level: 2. Understand

Learning Outcome: 11.10

Learning Outcome: 11.11

Section: 11.05

Topic: Endocrine System

Multiple Choice Questions

122. Which of the following is NOT true of calcitonin?

- A.** It is made by follicle cells of the thyroid.
- B. Inhibits loss of calcium by bones.
- C. It lowers blood calcium levels.
- D. All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.10

Section: 11.05

Topic: Endocrine System

123. Which of the following is true of parathyroid hormone function?
- A. It causes the kidneys to reabsorb calcium.
 - B. It causes the dissolution of calcium phosphate from bones.
 - C. It increases blood calcium levels.
 - D.** All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.11

Section: 11.05

Topic: Endocrine System

True / False Questions

124. Diabetes mellitus occurs due to lack of liver beta-cell function.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.12

Section: 11.06

Topic: Endocrine System

Multiple Choice Questions

125. The pancreas secretes hormones involved in regulation of
A. blood glucose.
B. the stress response.
C. metabolic rate.
D. growth and reproduction.

Blooms Level: 1. Remember
Learning Outcome: 11.12
Section: 11.06
Topic: Endocrine System

126. Destruction of the pancreatic beta-cells would result in
A. Cushing's disease.
B. Grave's disease.
C. diabetes mellitus.
D. diabetes insipidus.

Blooms Level: 1. Remember
Learning Outcome: 11.12
Section: 11.06
Topic: Endocrine System

127. Which of the following is NOT an effect of glucagon secretion?
A. lipolysis
B. ketogenesis
C. glycogenesis
D. glycogenolysis

Blooms Level: 1. Remember
Learning Outcome: 11.12
Section: 11.06
Topic: Endocrine System

True / False Questions

128. Insulin and glucagon are antagonistic hormones.

TRUE

Blooms Level: 2. Understand

Learning Outcome: 11.12

Section: 11.06

Topic: Endocrine System

Multiple Choice Questions

129. What are the carrier proteins for glucose diffusion into cells?

A. insulin

B. GLUT4

C. GLUT2

D. glucagon

Blooms Level: 1. Remember

Learning Outcome: 11.12

Section: 11.06

Topic: Endocrine System

130. Which of the following is NOT a role of glucagon in blood glucose homeostasis?

- A. raises blood glucose levels
- B. stimulates glycogenolysis and gluconeogenesis in the liver
- C. promotes lipolysis and ketogenesis
- D. promotes the movement of glucose out of skeletal muscle cells**

Blooms Level: 1. Remember

Learning Outcome: 11.12

Section: 11.06

Topic: Endocrine System

131. What hormone(s) is/are released when blood glucose levels decrease?
- A. insulin
 - B. glucagon
 - C. glucocorticoids
 - D. both glucagon and glucocorticoids**

Blooms Level: 1. Remember

Learning Outcome: 11.12

Section: 11.06

Topic: Endocrine System

132. Pineal gland production of melatonin is stimulated by the _____ of the hypothalamus.
- A. supraoptic nuclei
 - B. paraventricular nuclei
 - C. suprachiasmatic nucleus**
 - D. None apply.

Blooms Level: 1. Remember

Learning Outcome: 11.13

Section: 11.06

Topic: Endocrine System

133. Cycles of physiological activity that follow a 24-hour pattern are called
- A. circadian rhythms.**
 - B. biomemetic rhythms.
 - C. psychological rhythms.
 - D. cerebral rhythms.

Blooms Level: 1. Remember

Learning Outcome: 11.13

Section: 11.06

Topic: Endocrine System

134. Purported beneficial effects of melatonin include all of the following EXCEPT
- A. limiting the effects of jet lag.
 - B. treating insomnia.
 - C. preventing oxidative damage to cells.
 - D.** increasing weight loss.

Blooms Level: 1. Remember

Learning Outcome: 11.13

Section: 11.06

Topic: Endocrine System

True / False Questions

135. Melatonin is secreted by the pineal gland due to parasympathetic stimulation.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.13

Section: 11.06

Topic: Endocrine System

136. Daylight causes stimulation of the pineal gland to release melatonin.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.13

Section: 11.06

Topic: Endocrine System

Multiple Choice Questions

137. What is needed to control secretion of melatonin from the pineal gland?
- A. sympathetic stimulation from the suprachiasmatic nucleus of the hypothalamus
 - B. activation of melanopsin from ganglion cells of the retina
 - C. sunlight or lack of sunlight
 - D.** All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.13

Section: 11.06

Topic: Endocrine System

True / False Questions

138. Melatonin has an extremely important role in the onset of human puberty.
FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.13

Section: 11.06

Topic: Endocrine System

139. The stomach and small intestines release hormones to help coordinate activities with the autonomic nervous system for digestion.
TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.14

Section: 11.06

Topic: Endocrine System

140. Progesterone is secreted primarily from the corpus luteum.

TRUE

Blooms Level: 1. Remember

Learning Outcome: 11.14

Section: 11.06

Topic: Endocrine System

Multiple Choice Questions

141. Male secondary sex characteristics would not develop in boys in which the _____ cells did not secrete testosterone.

- A. seminiferous tubule
- B. interstitial
- C. Leydig
- D.** Both interstitial and Leydig are correct

Blooms Level: 1. Remember

Learning Outcome: 11.14

Section: 11.06

Topic: Endocrine System

142. A deficiency of dietary cholesterol would decrease the production of

- A. glucagon.
- B. atrial natriuretic hormone.
- C. melatonin
- D.** estradiol-17b.

Blooms Level: 2. Understand

Learning Outcome: 11.14

Section: 11.06

Topic: Endocrine System

143. The placental hormone with actions similar to both growth hormone and prolactin is
A. chorionic somatomammotropin.
B. chorionic gonadotropin.
C. placental prolactin.
D. placental lactogen.

Blooms Level: 1. Remember

Learning Outcome: 11.14

Section: 11.06

Topic: Endocrine System

True / False Questions

144. After menopause, the principal estrogen is estrone that is produced by the adrenal cortex.

FALSE

Blooms Level: 1. Remember

Learning Outcome: 11.14

Section: 11.06

Topic: Endocrine System

Multiple Choice Questions

145. Molecules that are produced within one tissue but regulate a different tissue of the same organ are called

- A. autocrine regulators.
- B. endocrine regulators.
- C.** paracrine regulators.
- D. exocrine regulators.

Blooms Level: 1. Remember

Learning Outcome: 11.15

Section: 11.07

Topic: Endocrine System

146. _____ regulators mediate the function of the cells in which they are synthesized.

- A.** Autocrine regulators
- B. Endocrine regulator.
- C. Paracrine regulators.
- D. Exocrine regulators.

Blooms Level: 1. Remember

Learning Outcome: 11.15

Section: 11.07

Topic: Endocrine System

147. Skin wound healing would be slowed due to a lack of _____ growth factors.

A. nerve

B. endothelin

C. epidermal

D. platelet

Blooms Level: 2. Understand

Learning Outcome: 11.15

Section: 11.07

Topic: Endocrine System

148. Blood vessel diameter is regulated by all of the following EXCEPT
- A. nitric oxide.
 - B. bradykinin.
 - C. endothelin.
 - D.** platelet-derived growth factor.

Blooms Level: 1. Remember

Learning Outcome: 11.15

Section: 11.07

Topic: Endocrine System

149. _____ are derived from the precursor arachidonic acid.
- A. Thyroid hormones
 - B. Adrenal medulla hormones
 - C. Glucocorticoids
 - D.** Prostaglandins and leukotrienes

Blooms Level: 1. Remember

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

True / False Questions

150. The same prostaglandin may produce different effects in different tissues.
TRUE

Blooms Level: 2. Understand

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

Multiple Choice Questions

151. Prostaglandins are eicosanoids derived from the fatty acid

- A. palmitic acid.
- B. linolenic acid.
- C. linoleic acid.
- D.** arachidonic acid.

Blooms Level: 1. Remember

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

152. Stomach irritation by NSAIDs like aspirin is believed to be the result of

- A.** inhibition of PGI₂ and PGE₂.
- B. secretion of PGI₂ and PGE₂.
- C. inhibition of thromboxane A₂.
- D. None apply.

Blooms Level: 1. Remember

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

153. _____ inhibits COX3 in the brain which results in pain and fever reduction.

- A.** Acetaminophen (Tylenol)
- B. Aspirin
- C. Ibuprofen (Motrin)
- D. All apply.

Blooms Level: 1. Remember

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

154. Which of the following statements about prostaglandins is true?
- A. Prostaglandin synthesis is blocked by the actions of caffeine.
 - B. Prostaglandins inhibit inflammation.
 - C.** Prostaglandins may contribute to asthma.
 - D. Thromboxane A₂ induces vasodilation.

Blooms Level: 1. Remember

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

155. All of the following are considered nonsteroidal anti-inflammatory drugs EXCEPT
- A. aspirin.
 - B. celecoxib (Celebrex).
 - C.** acetaminophen (Tylenol).
 - D. rofecoxib (Vioxx).

Blooms Level: 1. Remember

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

156. Aspirin reduces inflammation by
- A.** inhibiting the COX1 isoenzyme.
 - B. inhibiting the COX2 isoenzyme.
 - C. inhibiting the COX3 isoenzyme.
 - D. increasing production on PGI₂ and PGE₂.

Blooms Level: 1. Remember

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

157. Drugs that are useful for treating asthma are

- A. COX-2 inhibitors.
- B.** anti-leukotrienes.
- C. COX-3 inhibitors.
- D. COX-1 inhibitors.

Blooms Level: 1. Remember

Learning Outcome: 11.16

Section: 11.07

Topic: Endocrine System

Chapter 17
Physiology of the Kidneys

True / False Questions

1. The main function of the kidneys is the regulation of the intracellular fluid.

FALSE

Blooms Level: 2. Understand

Chapter 17

Section: 17.01

Topic: Urinary System

2. Blood pressure is regulated through the actions of the kidneys.

TRUE

Blooms Level: 2. Understand

Chapter 17

Section: 17.01

Topic: Urinary System

Multiple Choice Questions

3. The actions of the kidney include regulation of
- A. blood plasma pH.
 - B. blood plasma volume.
 - C. blood plasma electrolyte concentration.
 - D.** All of the choices are correct.

Blooms Level: 1. Remember
Chapter 17
Section: 17.01
Topic: Urinary System

4. What structures carry urine from the kidneys to the urinary bladder?
- A.** ureters
 - B. urethras
 - C. calyces
 - D. pyramids

Blooms Level: 1. Remember
Chapter 17
Section: 17.01
Topic: Urinary System

True / False Questions

5. Urine collects in the urinary bladder prior to entry into the urethra.
TRUE

Blooms Level: 1. Remember
Chapter 17
Section: 17.01
Topic: Urinary System

6. Damage to the lumbar region of the spinal cord could impair micturition.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

Multiple Choice Questions

7. The renal pelvis receives urine from the

A. minor calyces.

B. ureters.

C. renal pyramids.

D. major calyces.

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

8. Damage to which of the following neurons would impair micturition?

A. parasympathetic neurons

B. sympathetic neurons

C. pudendal somatic motor neurons

D. All of the choices are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

9. _____ are composed of crystals and proteins that grow until they break loose and pass into the urine collection system.

- A. Renal columns
- B. Renal calculi**
- C. Renal calyces
- D. Renal pyramids

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

10. Shock-wave lithotripsy is used to treat

- A. polycystic kidney disease.
- B. glomerulonephritis.
- C. acute renal failure.
- D. renal calculi.**

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

11. Incontinence could develop as a result of

- A. pressure on the detrusor muscle.
- B. poor bladder compliance.
- C. damage to the external urethral sphincter.
- D. All of the choices are correct.**

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

12. The process of urination is called
- A. deglutition.
 - B. micturition.**
 - C. incontinence.
 - D. glomerular filtration.

Blooms Level: 1. Remember
Chapter 17
Section: 17.01
Topic: Urinary System

13. The _____ is the functional unit of the kidney.
- A. calyx
 - B. nephron**
 - C. neuron
 - D. medulla

Blooms Level: 1. Remember
Chapter 17
Section: 17.01
Topic: Urinary System

14. The _____ is a capillary network that produces a blood filtrate that enters the urinary tubules.
- A. vasa recta
 - B. peritubular capillary
 - C. glomerulus**
 - D. interlobar capillary

Blooms Level: 1. Remember
Chapter 17
Section: 17.01
Topic: Urinary System

15. _____ is an autosomal dominant inherited condition in which progressive renal failure develops due to expanded portions of the renal tubule.

- A. Glomerulonephritis
- B. Renal calculus
- C. Polycystic kidney disease**
- D. Pyelonephritis

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

16. The _____ nephrons play an important role in producing concentrated urine.

- A. juxtamedullary**
- B. cortical
- C. pelvic
- D. calical

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

17. What structure is an arteriole capillary bed - drained by an arteriole instead of a venule?

- A. peritubular capillaries
- B. vasa recta
- C. glomerulus**
- D. juxtaglomerular apparatus

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

18. The efferent arteriole delivers blood to the
- A.** peritubular capillaries
 - B. vasa recta
 - C. glomerulus
 - D. juxtaglomerular apparatus

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

19. Which of the following is the correct order of the nephron tubule structures?
- A. distal convoluted tubule, loop of Henle, proximal convoluted tubule, Bowman's capsule
 - B. proximal convoluted tubule, Bowman's capsule, distal convoluted tubule, loop of Henle
 - C.** Bowman's capsule, proximal convoluted tubule, loop of Henle, distal convoluted tubule
 - D. loop of Henle, Bowman's capsule, proximal convoluted tubule, distal convoluted tubule

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

20. The guarding reflex allows the urinary bladder to fill by
- A. inhibiting parasympathetic stimulation of the detrusor muscle.
 - B. stimulating sympathetic nerves to the external urethral sphincter to contract.
 - C. responding to stretch receptors in the bladder wall.
 - D.** All of the choices are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

21. Where is the micturition center?

- A. S2-S4 of the spinal cord
- B. medulla oblongata
- C. urinary bladder
- D.** pons

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

22. Which sphincter is under voluntary control?

- A. internal urethral sphincter
- B.** external urethral sphincter

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

True / False Questions

23. The guarding reflex prevents voiding.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.01

Topic: Urinary System

Multiple Choice Questions

24. Which of the following is NOT a potential filtration barrier in the glomerular capsule?

- A. glomerular basement membrane
- B. capillary fenestrae
- C. parietal layer of the capsule**
- D. slit diaphragm

Blooms Level: 2. Understand

Chapter 17

Section: 17.02

Topic: Urinary System

25. The primary filter to exclude proteins from the filtrate is the

- A. glomerular basement membrane
- B. capillary fenestrae
- C. parietal layer of the capsule
- D. slit diaphragm**

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

26. What type of cells form the third filtration barrier?

- A. podocytes**
- B. ciliated cuboidal epithelial cells
- C. capillary simple squamous epithelial cells
- D. glomerulocytes

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

27. What is the order that filtrate must pass through to the glomerular capsule?
- A. podocytes of glomerular epithelium, glomerular basement membrane, capillary fenestrae
 - B.** capillary fenestrae, glomerular basement membrane, podocytes of visceral glomerular epithelium
 - C. glomerular basement membrane, capillary fenestrae, podocytes of visceral glomerular epithelium
 - D. capillary fenestrae, podocytes of visceral glomerular epithelium, glomerular basement membrane

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

28. What is the net filtration pressure of the glomerular capillaries?
- A. 10 mm Hg inward
 - B. 15 mm Hg outward
 - C. 15 mm Hg inward
 - D.** 10 mm Hg outward

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

29. Which of the following is a layer of the renal corpuscle?
- A. glomerular visceral epithelium
 - B. glomerular parietal epithelium
 - C. glomerular endothelium
 - D.** All of the choices are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

30. The average glomerular filtration rate is equal to
A. 180 L/day.
B. 5.5 L/min.
C. 100 mmHg/hour.
D. 8 mg/hour.

Blooms Level: 1. Remember
Chapter 17
Section: 17.02
Topic: Urinary System

True / False Questions

31. Dilation of the afferent arteriole would increase glomerular pressure.
TRUE

Blooms Level: 2. Understand
Chapter 17
Section: 17.02
Topic: Urinary System

32. Highly elevated blood pressure would stimulate an increased glomerular filtration rate.
TRUE

Blooms Level: 2. Understand
Chapter 17
Section: 17.02
Topic: Urinary System

33. A decrease in blood pressure will cause an increase in GFR through sympathetic stimulation.

FALSE

Blooms Level: 2. Understand

Chapter 17

Section: 17.02

Topic: Urinary System

34. An increased GFR leads to an increase in urine production.

TRUE

Blooms Level: 2. Understand

Chapter 17

Section: 17.02

Topic: Urinary System

Multiple Choice Questions

35. Increased sympathetic neuron activity will cause

A. vasoconstriction of afferent arterioles.

B. increased GFR.

C. increased urine production.

D. decreased blood volume.

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

True / False Questions

36. Macula densa cells of the juxtaglomerular apparatus are part of the tubuloglomerular feedback mechanism.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

37. ATP and adenosine from macula densa cells stimulate vasodilation of the afferent arteriole.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

Multiple Choice Questions

38. The ability of the kidneys to maintain a relatively constant GFR despite fluctuating blood pressures is called as

- A. renal plasma threshold.
- B. renal transport maximum.
- C. renal plasma clearance.
- D.** renal autoregulation.

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

39. Hypotension would induce _____ of afferent arterioles.
- A. constriction
 - B. dilation**
 - C. no change

Blooms Level: 1. Remember
Chapter 17
Section: 17.02
Topic: Urinary System

40. The sensor in tubuloglomerular feedback is a group of cells called the
- A. macula densa.**
 - B. glomerulus.
 - C. vasa recta.
 - D. macula lutea.

Blooms Level: 1. Remember
Chapter 17
Section: 17.02
Topic: Urinary System

41. Glomerular filtration would be decreased by
- A. increased plasma protein concentration.
 - B. increased glomerular filtrate protein concentration.
 - C. decreased glomerular hydrostatic pressure.**
 - D. increased mean arterial pressure.

Blooms Level: 2. Understand
Chapter 17
Section: 17.02
Topic: Urinary System

42. Through renal autoregulation, an increase in blood pressure will cause the afferent arteriole to ____ and therefore the GFR will ____.

- A. dilate, not change
- B. dilate, decrease.
- C. constrict, decrease.
- D.** constrict, not change.

Blooms Level: 1. Remember

Chapter 17

Section: 17.02

Topic: Urinary System

True / False Questions

43. Under conditions of severe dehydration approximately 99.2% of the glomerular ultrafiltrate volume is reabsorbed.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

Multiple Choice Questions

44. The minimum urine volume needed to excrete metabolic wastes produced by the body is called as
- A. renal plasma threshold.
 - B. renal autoregulation.
 - C.** obligatory water loss.
 - D. renal transport minimum.

Blooms Level: 1. Remember
Chapter 17
Section: 17.03
Topic: Urinary System

45. The return of molecules from the tubules to the blood is called as
- A.** reabsorption.
 - B. secretion.
 - C. filtration.
 - D. autoregulation.

Blooms Level: 1. Remember
Chapter 17
Section: 17.03
Topic: Urinary System

46. The majority of reabsorption occurs in the
- A. collecting duct.
 - B. distal convoluted tubule.
 - C. loop of Henle.
 - D.** proximal convoluted tubule.

Blooms Level: 1. Remember
Chapter 17
Section: 17.03
Topic: Urinary System

47. The obligatory water loss needed to excrete metabolic wastes is _____ per day.
- A. 300 mL
 - B. 400 mL**
 - C. 600 mL
 - D. 800 mL

Blooms Level: 1. Remember
Chapter 17
Section: 17.03
Topic: Urinary System

True / False Questions

48. The transport of water is always an active process.
FALSE

Blooms Level: 1. Remember
Chapter 17
Section: 17.03
Topic: Urinary System

49. The proximal convoluted tubule reabsorbs approximately 65% of water and ions salt entering it.
TRUE

Blooms Level: 1. Remember
Chapter 17
Section: 17.03
Topic: Urinary System

Multiple Choice Questions

50. The _____ surface of the simple cuboidal epithelia in the proximal convoluted tubule contains microvilli.

- A. lateral
- B. basal**
- C. basolateral
- D. apical

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

51. Na^+ reabsorption is a(n) _____ process, while Cl^- reabsorption is a(n) _____ process.

- A. active, active
- B. active, passive**
- C. passive, passive
- D. passive, active

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

True / False Questions

52. Epithelial cells of the proximal tubule have a lower concentration of Na⁺ than the filtrate.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

Multiple Choice Questions

53. What creates a Na^+ concentration gradient in the proximal tubule?

- A. Na^+/K^+ pump
- B. diffusion of Na^+
- C. osmosis of water
- D. diffusion of Cl^-

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

54. Na^+ moves by _____ from the filtrate into the epithelial cells of the proximal tubule.

- A. active transport
- B. Na^+/K^+ pump
- C. diffusion
- D. pinocytosis

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

55. The reabsorption of Na^+ in the proximal tubule creates an osmotic gradient for the diffusion of _____ to occur.

A. Cl^-

B. H_2O

C. K^+

D. All of the choices are correct.

Blooms Level: 2. Understand

Chapter 17

Section: 17.03

Topic: Urinary System

True / False Questions

56. Since water follows the reabsorption of Na^+ in the proximal tubule, the filtrate is isotonic with the blood.

TRUE

Blooms Level: 2. Understand

Chapter 17

Section: 17.03

Topic: Urinary System

57. The proximal tubule and loop of Henle are subject to hormonal regulation of sodium and water.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

58. As the tubular filtrate moves through the descending limb of the loop of Henle, the osmolality of the filtrate increases.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

59. Na^+ is actively transported into the tubule cells of the ascending limb of the Loop of Henle from the tubular lumen.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

Multiple Choice Questions

60. The _____ limb of the loop of Henle is impermeable to water.

- A.** ascending
- B. descending
- C. both limbs
- D. neither

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

61. The ____ limb of the loop of Henle is impermeable to salt.
- A. ascending
 - B. descending**
 - C. both limbs
 - D. neither

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

62. The tubular filtrate osmolarity _____ as it flows through the ascending limb of the loop of Henle.
- A. increases
 - B. decreases**
 - C. remains unchanged

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

63. Inhibition of the functions of the descending limb of the loop of Henle would stimulate
- A. decreased water reabsorption.**
 - B. increased Na⁺ reabsorption.
 - C. decreased Na⁺ reabsorption.
 - D. increased water reabsorption.

Blooms Level: 2. Understand

Chapter 17

Section: 17.03

Topic: Urinary System

True / False Questions

64. The vasa recta have the net effect of concentrating solutes in the interstitial fluid of the renal medulla.

TRUE

Blooms Level: 2. Understand

Chapter 17

Section: 17.03

Topic: Urinary System

Multiple Choice Questions

65. The _____ acts as a countercurrent exchanger.

A. juxtaglomerular apparatus

B. peritubular capillaries

C. vasa recta

D. macula densa

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

True / False Questions

66. Salt leaving the ascending limb of the loop of Henle causes the loss of water from the descending limb of the loop of Henle.

TRUE

Blooms Level: 2. Understand

Chapter 17

Section: 17.03

Topic: Urinary System

Multiple Choice Questions

67. The concentration of renal filtrate is highest in the

A. proximal convoluted tubule.

B. base of the Loop of Henle.

C. distal convoluted tubule.

D. cortical portion of the collecting duct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

68. What is present in the vasa recta to remove water from the interstitial fluid of the renal medulla?

- A. Na⁺/K⁺ pump
- B. urea transporters
- C. aquaporins**
- D. ADH receptors

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

69. Countercurrent multiplication occurs by the actions of the
- A. vasa recta.
 - B. peritubular capillaries.
 - C. loop of Henle.
 - D.** Both vasa recta and loop of Henle are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

70. _____ is a nonsalt molecule that contributes to the hypertonicity of the interstitial fluid of the renal tubules.
- A.** Urea
 - B. Protein
 - C. Creatinine
 - D. Xenobiotic molecule

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

71. Urea transport in the collecting duct is a(n) _____ process.
- A. active
 - B.** passive
 - C. exocytosis
 - D. endocytosis

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

True / False Questions

72. Urea is transported out of the descending limb of the loop of Henle to add to the high osmolarity of the medulla.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

73. The collecting duct is naturally impermeable to salt but permeable to water.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

74. Diabetes mellitus is a disease associated with the inadequate secretion or action of ADH.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

75. Water permeability in the collecting duct is varied by altering the number of aquaporins present.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

76. The maximal response to antidiuretic hormone occurs in the cortical nephrons.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

77. Water permeability of the proximal convoluted tubule is regulated by antidiuretic hormone.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

78. The presence of antidiuretic hormone causes aquaporins to be formed in the collecting duct cells.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

79. Antidiuretic hormone exerts its effect via a cAMP second messenger system.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

Multiple Choice Questions

80. Neurohypophyseal secretion of _____ stimulates formation of concentrated urine.

A. aldosterone

B. renin

C. antidiuretic hormone

D. angiotensin I

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

True / False Questions

81. An increase in plasma osmolality will cause the secretion of ADH.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

82. An increase of blood volume will cause secretion of ADH.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

Multiple Choice Questions

83. Tubular ultrafiltrate enters the collecting duct from the

A. glomerulus.

B. loop of Henle.

C. distal convoluted tubule.

D. proximal convoluted tubule.

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

84. Antidiuretic hormone

- A. stimulates water reabsorption by the kidney.
- B. induces fusion of aquaporin containing vesicles with the plasma membrane.
- C. is secreted in response to dehydration.
- D.** All of the choices are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.03

Topic: Urinary System

True / False Questions

85. Tubular secretion of small xenobiotics is often accomplished by polyspecific organic anion transporters.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

Multiple Choice Questions

86. The ability of the kidneys to remove molecules from the blood plasma by excreting them in the urine is known as

- A. glomerular filtration.
- B. renal clearance.**
- C. micturition.
- D. reabsorption

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

87. Which transporters in the proximal tubule are polyspecific and transport small molecules of drugs and toxins to the ultrafiltrate?

- A. water transporters
- B. renal aquaporins
- C. organic anion transporters**
- D. toxiporins

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

88. The effectiveness of some antibiotics, such as penicillin, is enhanced by preventing their excretion by use of

- A. toxiporins.
- B. organic anion transporters.
- C. probenecid.
- D. xenobiotics.

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

89. The movement of molecules and ions from the peritubular capillaries into interstitial fluid and then into the nephron tubule is called

- A. secretion.
- B. reabsorption.
- C. excretion.
- D. filtration.

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

True / False Questions

90. Renal clearance is decreased by reabsorption and increased by secretion.

TRUE

Blooms Level: 2. Understand

Chapter 17

Section: 17.04

Topic: Urinary System

Multiple Choice Questions

91. Where are OATs located?

- A.** basolateral membrane of proximal tubule cells
- B. apical membrane of distal tubule cells
- C. basolateral membrane of distal tubule cells
- D. apical membrane of collecting duct cells

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

True / False Questions

92. Inulin clearance gives a measurement of the glomerular filtration rate.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

Multiple Choice Questions

93. If the rate of urine formation is 2 ml/min, the urine inulin concentration is 25 mg/ml, and the plasma inulin concentration 0.5 mg/ml, then the GFR is

- A. 0.04 mL/min.
- B. 100 mL/min.**
- C. 6.25 mL/min.
- D. None of the choices are correct.

Blooms Level: 3. Apply
Chapter 17
Section: 17.04
Topic: Urinary System

True / False Questions

94. Inulin is a good measure of GFR because it is filtered but neither reabsorbed nor secreted by the kidneys.

TRUE

Blooms Level: 1. Remember
Chapter 17
Section: 17.04
Topic: Urinary System

95. Plasma measurement of creatinine is a close estimate of GFR.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

Multiple Choice Questions

96. Decreased glomerular filtration rate would

A. increase plasma protein clearance rate.

B. increase plasma urea clearance rate.

C. decrease plasma creatinine clearance rate.

D. decrease plasma glucose clearance rate.

Blooms Level: 2. Understand

Chapter 17

Section: 17.04

Topic: Urinary System

True / False Questions

97. The renal plasma clearance of a substance that is filtered and reabsorbed must be less than the GFR.

TRUE

Blooms Level: 2. Understand

Chapter 17

Section: 17.04

Topic: Urinary System

Multiple Choice Questions

98. The renal plasma clearance of a substance that is filtered and secreted is ____ the GFR.

A. greater than

B. less than

C. equal to

Blooms Level: 2. Understand

Chapter 17

Section: 17.04

Topic: Urinary System

99. The renal plasma clearance of a substance that is filtered but not reabsorbed or secreted is ____ the GFR.

A. greater than

B. less than

C. equal to

Blooms Level: 2. Understand

Chapter 17

Section: 17.04

Topic: Urinary System

100. Renal clearance of PAH _____ glomerular filtration rate.

A. is equal to

B. exceeds

C. is less than

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

101. PAH actually measures
- A. glomerular filtration rate.
 - B. renal plasma clearance.
 - C.** total renal blood flow.
 - D. transport maximum.

Blooms Level: 1. Remember
Chapter 17
Section: 17.04
Topic: Urinary System

102. The minimum plasma concentration of a substance that results in the excretion of that substance in the urine is the
- A. transport maximum.
 - B. GFR.
 - C. renal plasma clearance.
 - D.** renal plasma threshold.

Blooms Level: 1. Remember
Chapter 17
Section: 17.04
Topic: Urinary System

True / False Questions

103. The concentration of glucose in the glomerular ultrafiltrate is less than that of plasma.
FALSE

Blooms Level: 2. Understand
Chapter 17
Section: 17.04
Topic: Urinary System

104. Only about 20% of renal blood is filtered in one pass through the kidneys.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

Multiple Choice Questions

105. The _____ is the saturation point of renal carrier molecules.

A. transport maximum

B. GFR

C. renal plasma clearance

D. renal plasma threshold

Blooms Level: 1. Remember

Chapter 17

Section: 17.04

Topic: Urinary System

Short Answer Questions

106. If the urine volume formation is 2 mL/min, the concentration of urea in plasma is 0.3 mg/mL of urea, and the concentration in the urine is 7.8 mg/mL of urea, what is the urea clearance? (Give answer in proper units)

Answers will vary

Blooms Level: 3. Apply

Chapter 17

Section: 17.04

Topic: Urinary System

Multiple Choice Questions

107. People with diabetes mellitus have glycosuria because

A. the total renal blood flow is low.

B. the plasma glucose concentration is greater than the renal plasma threshold.

C. they have inadequate amounts of ADH.

D. None of the choices are correct.

Blooms Level: 2. Understand

Chapter 17

Section: 17.04

Topic: Urinary System

108. People with diabetes mellitus have polyuria because
- A. they have inadequate amounts of ADH.
 - B.** they have greater oncotic pressure in the kidney tubules.
 - C. they have inadequate amounts of aldosterone.
 - D. they drink a lot of water.

Blooms Level: 2. Understand

Chapter 17

Section: 17.04

Topic: Urinary System

True / False Questions

109. Increased aldosterone secretion stimulates renal potassium retention.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

Multiple Choice Questions

110. Inhibition of _____ secretion from the adrenal cortex stimulates hyperkalemia.
- A.** aldosterone
 - B. renin
 - C. angiotensin I
 - D. angiotensin II

Blooms Level: 1. Remember
Chapter 17
Section: 17.05
Topic: Urinary System

111. Excessive aldosterone secretion would induce
- A.** decreased plasma potassium.
 - B. decreased plasma sodium.
 - C. decreased plasma chloride.
 - D. no change in plasma ion balance.

Blooms Level: 1. Remember
Chapter 17
Section: 17.05
Topic: Urinary System

112. Diuretics

- A. decrease urine production.
- B. induce hypertension.
- C. often act on the proximal convoluted tubule.
- D.** often act on the distal convoluted tubule.

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

113. The main region of aldosterone action is the
- A. distal convoluted tubule.
 - B. proximal convoluted tubule.
 - C. medullary collecting duct.
 - D. cortical collecting duct.**

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

114. Due to the action of aldosterone, water is reabsorbed because
- A. sodium is excreted in the urine.
 - B. potassium is reabsorbed into peritubular blood.
 - C. sodium is reabsorbed into peritubular blood.**
 - D. aldosterone opens aquapores.

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

115. Granular cells of the juxtaglomerular apparatus respond to decreased blood volume and increased sympathetic nerve activity by secreting
- A. renin.**
 - B. inulin.
 - C. angiotensinogen.
 - D. natriuretic hormone.

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

116. Angiotensin-converting enzyme is mostly present in the capillaries of the
- A. liver.
 - B. kidneys.
 - C.** lungs.
 - D. adrenal medulla.

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

117. The presence of renin secreting tumors may cause
- A. hypertension.
 - B. increased aldosterone secretion.
 - C. increased renal sodium reabsorption.
 - D.** All of the choices are correct.

Blooms Level: 2. Understand

Chapter 17

Section: 17.05

Topic: Urinary System

118. Hemorrhage would induce
- A.** increased renin secretion.
 - B. increased atrial natriuretic peptide secretion.
 - C. decreased ADH secretion.
 - D. All of the choices are correct.

Blooms Level: 2. Understand

Chapter 17

Section: 17.05

Topic: Urinary System

119. An inadequate dietary intake of NaCl will cause
- A. a rise in blood volume.
 - B. a rise in renal blood flow.
 - C.** increased renin secretion.
 - D. decreased aldosterone secretion.

Blooms Level: 2. Understand

Chapter 17

Section: 17.05

Topic: Urinary System

120. Aldosterone secretion from the adrenal cortex is stimulated by a(n) _____ in blood Na⁺ or a(n) _____ in blood K⁺.
- A. increase, decrease
 - B. increase, increase
 - C.** decrease, increase
 - D. decrease, decrease

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

121. The conversion of angiotensin I into angiotensin II occurs primarily in the
- A. liver.
 - B. adrenal cortex.
 - C. kidneys.
 - D.** lungs.

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

True / False Questions

122. Potassium secretion by the kidneys is only possible due to the action of aldosterone.
FALSE

Blooms Level: 1. Remember
Chapter 17
Section: 17.05
Topic: Urinary System

123. Diuresis is stimulated by atrial natriuretic peptide.
TRUE

Blooms Level: 1. Remember
Chapter 17
Section: 17.05
Topic: Urinary System

124. In response to low blood plasma Na^+ , reduced ADH will decrease water volume in the blood to match lower Na^+ concentration while increased aldosterone will increase Na^+ reabsorption to match the higher water volume of blood.
TRUE

Blooms Level: 2. Understand
Chapter 17
Section: 17.05
Topic: Urinary System

Multiple Choice Questions

125. Changes in blood volume are detected by
- A. osmoreceptors in hypothalamus.
 - B.** stretch receptors in the atria.
 - C. cells in the proximal convoluted tubule.
 - D. osmoreceptors in the medulla.

Blooms Level: 1. Remember
Chapter 17
Section: 17.05
Topic: Urinary System

126. Conn's syndrome results in hypokalemia and
- A. metabolic alkalosis.
 - B. metabolic acidosis.
 - C. loss of H⁺.
 - D.** Both metabolic alkalosis and loss of H⁺ are correct.

Blooms Level: 1. Remember
Chapter 17
Section: 17.05
Topic: Urinary System

127. Depletion of extracellular K^+ may induce
- A. metabolic acidosis.
 - B.** metabolic alkalosis.
 - C. hyperventilation.
 - D. None of the choices are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

128. An increase in extracellular H^+ concentration may result in _____ extracellular K^+ .
A. increased
B. decreased
C. no change in

Blooms Level: 2. Understand
Chapter 17
Section: 17.05
Topic: Urinary System

True / False Questions

129. The buffers of urinary pH are ammonia and monohydrogen phosphate.
TRUE

Blooms Level: 1. Remember
Chapter 17
Section: 17.05
Topic: Urinary System

Multiple Choice Questions

130. Inhibiting the actions of _____ would impair the ability of the kidney to regulate pH of the blood.

- A. aldosterone
- B. ADH
- C.** carbonic anhydrase
- D. inulin

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

131. In response to alkalosis

- A. the kidney maximally reabsorbs bicarbonate.
- B.** the kidney excretes bicarbonate.
- C. excess H^+ enters the tubular filtrate.
- D. tubular carbonic anhydrase is inhibited.

Blooms Level: 2. Understand

Chapter 17

Section: 17.05

Topic: Urinary System

True / False Questions

132. The apical membranes of the tubular cells are impermeable to bicarbonate.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

133. The kidneys provide short term adjustments to maintain body pH.

FALSE

Blooms Level: 2. Understand

Chapter 17

Section: 17.05

Topic: Urinary System

Multiple Choice Questions

134. Bicarbonate must be converted to _____ to move into tubule cells to reduce blood pH.

A. carbonic anhydrase

B. carbonic acid

C. carbon dioxide

D. None of the choices are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

True / False Questions

135. The kidneys can directly reabsorb bicarbonate.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

Multiple Choice Questions

136. Since most filtered bicarbonate is reabsorbed, where does the bicarbonate come from that is used to compensate for acidosis?

- A. carbonic acid
- B. carbon dioxide
- C. glutamine**
- D. glucose

Blooms Level: 1. Remember

Chapter 17

Section: 17.05

Topic: Urinary System

True / False Questions

137. The osmotic diuretic mannitol inhibits salt and water absorption in the proximal convoluted tubule.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

138. Hypertension and edema are often treated with diuretics.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

Multiple Choice Questions

139. Neuromuscular disorders and electrocardiographic abnormalities can result from
- A. hypokalemia.
 - B. excessive use of loop diuretics.
 - C. excessive use of thiazide diuretics.
 - D.** All of the choices are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

140. Spironolactone
- A.** inhibits the actions of aldosterone.
 - B. blocks bicarbonate reabsorption.
 - C. stimulates hypertension.
 - D. activates Na^+/K^+ pumps.

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

141. Loop diuretics such as Lasix

A. inhibit the actions of ADH.

B. add extra solutes to the filtrate.

C. inhibit active transport of salt out of the ascending loop of Henle limb.

D. inhibit salt transport in the first section of the distal tubule.

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

142. Thiazide diuretics

A. inhibit the actions of ADH.

B. add extra solutes to the filtrate.

C. inhibit active transport of salt out of the ascending limb of Henle loop.

D. inhibit salt transport in the first section of the distal tubule and the last part of the ascending limb of Henle loop.

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

True / False Questions

143. Renal damage often produces microalbuminuria.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

144. Glomerulonephritis may result from destruction of the glomerular capillary basement membrane.

TRUE

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

145. Renal insufficiency often results from dialysis.

FALSE

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

Multiple Choice Questions

146. _____ is believed to be an autoimmune disease affecting the kidney.

A. Pyelonephritis

B. Polycystic kidney

C. Glomerulonephritis

D. Cystitis

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

147. Which test can be used to detect renal damage from diabetes or hypertension?

- A. urea clearance
- B. PAH clearance
- C. inulin clearance
- D. urinary albumin excretion rate**

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

148. Renal insufficiency

- A. stimulates metabolic alkalosis.
- B. often results from dialysis.
- C. may occur as a result of arteriosclerosis.**
- D. stimulates hypokalemia.

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

149. CAPD utilizes the _____ as a dialysis membrane.

- A. artificial semipermeable membrane
- B. urinary bladder
- C. peritoneum**
- D. lungs

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

150. Uremia may cause

- A. acidosis.
- B. hyperkalemia.
- C. uretic coma.
- D.** All of the choices are correct.

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

151. Kidney stones may result in all the following EXCEPT

- A. renal insufficiency.
- B. hypertension due to water and salt retention.
- C.** polyuria.
- D. uremia.

Blooms Level: 1. Remember

Chapter 17

Section: 17.06

Topic: Urinary System

True / False Questions

152. Dialysis fluid has Na^+ , K^+ , and glucose present so that those substances will not be removed from the patient's blood.

TRUE

Blooms Level: 2. Understand

Chapter 17

Section: 17.06

Topic: Urinary System