9.1 Multiple Choice Part I Questions

Using Figure 9.1, identify the following:

1) The gland that produces thymosin is indicated by ________.
   A) Label F
   B) Label J
   C) Label D
   D) Label A
   E) Label C
   Answer:  A
   Page Ref: 312, 327
   Bloom's: 2) Comprehension

2) The gland that produces melatonin is indicated by ________.
   A) Label C
   B) Label D
   C) Label J
   D) Label B
   E) Label A
   Answer: E
   Page Ref: 312, 326
   Bloom's: 2) Comprehension
3) The gland that produces testosterone is indicated by ________.
A) Label I
B) Label F
C) Label E
D) Label J
E) Label A
Answer:  D
Page Ref: 312, 327  
Bloom's:  2) Comprehension

4) The glands that produce catecholamines are indicated by ________.
A) Label J
B) Label I
C) Label G
D) Label E
E) Label F
Answer:  C
Page Ref: 312, 323  
Bloom's:  2) Comprehension

5) The producer of hormones released by the posterior pituitary is indicated by ________.
A) Label B
B) Label D
C) Label J
D) Label A
E) Label C
Answer:  A
Page Ref: 312, 313  
Bloom's:  2) Comprehension

6) The gland that produces insulin and glucagon is indicated by ________.
A) Label D
B) Label H
C) Label B
D) Label G
E) Label F
Answer:  B
Page Ref: 312, 323  
Bloom's:  2) Comprehension
7) The glands that act as antagonists to the thyroid gland are indicated by ________.
   A) Label H
   B) Label E
   C) Label I
   D) Label F
   E) Label C
   Answer: B
   Page Ref: 312, 319
   Bloom's: 2) Comprehension

8) The gland that hangs from a stalk from the hypothalamus is indicated by ________.
   A) Label C
   B) Label J
   C) Label E
   D) Label F
   E) Label I
   Answer: A
   Page Ref: 312, 313
   Bloom's: 1) Knowledge

9) The gland that is the major producer of female hormones is indicated by ________.
   A) Label D
   B) Label F
   C) Label J
   D) Label I
   E) Label H
   Answer: D
   Page Ref: 312, 327
   Bloom's: 2) Comprehension

10) The gland that is primarily responsible for regulating metabolism is indicated by ________.
    A) Label I
    B) Label A
    C) Label D
    D) Label E
    E) Label J
    Answer: C
    Page Ref: 312, 317
    Bloom's: 2) Comprehension
11) The thymus is indicated by ________.
A) Label E
B) Label H
C) Label F
D) Label J
E) Label A
Answer: C
Page Ref: 312, 327
Bloom's: 1) Knowledge

12) The pancreas is indicated by ________.
A) Label H
B) Label E
C) Label I
D) Label A
E) Label B
Answer: A
Page Ref: 312, 323
Bloom's: 1) Knowledge

13) The pineal gland is indicated by ________.
A) Label H
B) Label D
C) Label F
D) Label B
E) Label A
Answer: E
Page Ref: 312, 325
Bloom's: 1) Knowledge

14) The glands situated around the thyroid gland that operate entirely under humoral control are represented by ________.
A) Label C
B) Label F
C) Label E
D) Label B
E) Label G
Answer: C
Page Ref: 311, 312
Bloom's: 2) Comprehension
15) Water-soluble hormones, such as proteins and peptide hormones, activate target cells using ________.
   A) direct gene activation
   B) the second-messenger system
   C) steroid hormone action
   D) diffusion
   Answer: B
   Page Ref: 310
   Bloom's: 1) Knowledge

16) The most common stimulus for prodding endocrine glands into action is ________.
   A) hormonal
   B) humoral
   C) neural
   D) direct gene activation
   Answer: A
   Page Ref: 311
   Bloom's: 1) Knowledge

17) The endocrine gland most closely associated with the hypothalamus is the ________.
   A) thymus
   B) pineal gland
   C) thyroid gland
   D) pituitary gland
   Answer: D
   Page Ref: 313
   Bloom's: 1) Knowledge

18) The target organ of thyrotropic hormone (TH), or thyroid-stimulating hormone (TSH), is the ________ gland.
   A) adrenal
   B) pineal
   C) pituitary
   D) thyroid
   Answer: D
   Page Ref: 317
   Bloom's: 1) Knowledge

19) Alcohol suppresses the production of this hormone, ________, which normally promotes water retention and prevents dehydration.
   A) antidiuretic hormone (ADH)
   B) aldosterone
   C) thyroid-stimulating hormone (TSH)
   D) cortisol
   Answer: A
   Page Ref: 314
   Bloom's: 1) Knowledge
20) The hypothalamus makes two hormones, ______ and ______, that are stored by the posterior pituitary.
A) oxytocin; antidiuretic hormone (ADH)
B) cortisol; aldosterone
C) growth hormone; prolactin
D) antidiuretic hormone (ADH); prolactin
Answer: A
Page Ref: 313, 314
Bloom's: 1) Knowledge

21) Calcitonin is made by the ______ cells of the thyroid gland.
A) follicle
B) parafollicular
C) beta
D) alpha
Answer: B
Page Ref: 317
Bloom's: 1) Knowledge

22) Mineralocorticoids regulate the concentration of ______ and ______ ions in our blood.
A) iron; magnesium
B) calcium; phosphorus
C) water; glucose
D) sodium; potassium
Answer: D
Page Ref: 321
Bloom's: 1) Knowledge

23) Cortisone and cortisol are types of ______ produced by the middle cortical layer of the adrenal gland.
A) mineralocorticoids
B) glucocorticoids
C) sex hormones
D) catecholamines
Answer: B
Page Ref: 321
Bloom's: 1) Knowledge
24) A hormone produced by the heart, known as _______, prevents the release of aldosterone in order to reduce blood volume and blood pressure.
A) atrial natriuretic peptide (ANP)
B) cortisol
C) antidiuretic hormone (ADH)
D) glucagon
Answer: A
Page Ref: 321
Bloom's: 1) Knowledge

25) Male sex hormones produced by the adrenal cortex are called _______.
A) estrogens
B) glucocorticoids
C) androgens
D) mineralocorticoids
Answer: C
Page Ref: 321
Bloom's: 1) Knowledge

26) Bronze skin color, hypoglycemia, and a reduced ability to cope with stress (burnout) are signs and symptoms of _______.
A) Addison's disease
B) Graves' disease
C) Cushing's disease
D) goiter
Answer: A
Page Ref: 322
Bloom's: 3) Application

27) Hypersecretion of glucocorticoids, often caused by a tumor, results in _______.
A) Cushing's syndrome
B) Graves' disease
C) diabetes insipidus
D) Addison's disease
Answer: A
Page Ref: 322
Bloom's: 2) Comprehension

28) Catecholamines are released by the _______.
A) pancreas
B) thyroid gland
C) adrenal cortex
D) adrenal medulla
Answer: D
Page Ref: 323
Bloom's: 1) Knowledge
29) Beta cells of the pancreatic islets produce a hormone known as ________ while the alpha cells produce a hormone known as ________.
A) insulin; glucagon
B) glucagon; insulin
C) cortisol; glucagon
D) epinephrine; cortisol
Answer: A
Page Ref: 323
Bloom's: 1) Knowledge

30) Polyphagia, polydipsia, and polyuria are the three cardinal signs of a disease known as ________.
A) diabetes insipidus
B) hypoglycemia
C) diabetes mellitus
D) goiter
Answer: C
Page Ref: 324
Bloom's: 3) Application

31) When blood glucose levels are too high, the beta cells of the pancreas release ________ to decrease levels.
A) epinephrine
B) glucagon
C) insulin
D) growth hormone
Answer: C
Page Ref: 323
Bloom's: 1) Knowledge

32) A hormone called ________ is believed to play an important role in establishing the body's day-night cycle.
A) thymosin
B) cortisol
C) melatonin
D) aldosterone
Answer: C
Page Ref: 326
Bloom's: 1) Knowledge
33) A hormone called ________ plays an important role in incubating a special group of white blood cells.
A) cortisol
B) thymosin
C) glucagon
D) melatonin
Answer: B
Page Ref: 327
Bloom's: 1) Knowledge

34) The hormone produced by male testes which is responsible for sperm production is ________.
A) estrogen
B) cortisol
C) testosterone
D) prolactin
Answer: C
Page Ref: 327
Bloom's: 1) Knowledge

35) Home pregnancy tests check for a hormone in the female's urine called ________.
A) human chorionic gonadotropin (hCG)
B) antidiuretic hormone (ADH)
C) atrial natriuretic peptide (ANP)
D) thyroid-stimulating hormone (TSH)
Answer: A
Page Ref: 330
Bloom's: 1) Knowledge
9.2 Multiple Choice Part II Questions

1) Which system produces chemical messengers known as hormones?
   A) nervous system
   B) immune system
   C) endocrine system
   D) integumentary system
   E) muscular system
   Answer: C
   Page Ref: 308
   Bloom's:  1) Knowledge

2) Which of the following hormones is NOT classified as a steroid hormone?
   A) oxytocin
   B) estrogen
   C) adrenocorticoids
   D) testosterone
   E) mineralocorticoids
   Answer: A
   Page Ref: 309
   Bloom's:  1) Knowledge

3) Which one of the following is NOT typical of the changes that follow the binding of a hormone to its target cells?
   A) plasma membrane permeability changes
   B) cellular mutations occur
   C) enzymes are activated or inactivated
   D) mitosis is stimulated
   E) proteins are synthesized in the cell
   Answer: B
   Page Ref: 309
   Bloom's:  2) Comprehension

4) Prostaglandins are ________.
   A) amino acid-based hormones
   B) steroid hormones
   C) lipid hormones manufactured in the plasma membranes of cells
   D) glycerol hormones
   E) target organs
   Answer: C
   Page Ref: 309, 321, 331
   Bloom's:  1) Knowledge
5) Being lipid soluble, steroids can do all the following EXCEPT ________.
A) diffuse through the plasma membranes of target cells
B) catalyze cyclic AMP
C) enter the nucleus
D) bind to receptor proteins within the nucleus
E) activate genes to transcribe mRNA for protein synthesis
Answer:  B
Page Ref: 309
Bloom's:  2) Comprehension

6) Most hormones are ________.
A) regulated by a positive feedback mechanism
B) classified as steroids
C) released upon stimulation by other hormones
D) controlled by blood levels of ions or nutrients
E) able to diffuse through the plasma membrane of their target cells
Answer:  C
Page Ref: 311
Bloom's:  1) Knowledge

7) Most endocrine organs are prodded into action by other hormones; this type of stimulus is called ________.
A) hormonal stimulus
B) humoral stimulus
C) neural stimulus
D) receptor-mediated stimulus
E) steroid stimulus
Answer:  A
Page Ref: 311
Bloom's:  1) Knowledge

8) Tropic hormones ________.
A) stimulate the pineal gland to secrete hormones
B) stimulate the thymus gland to secrete hormones
C) stimulate other endocrine glands to secrete hormones
D) stimulate nervous tissue
E) stimulate prostaglandins
Answer:  C
Page Ref: 315
Bloom's:  1) Knowledge
9) Which of these anterior pituitary hormones regulates the activity of the cortex region of the adrenal gland?
A) thyrotropic hormone (thyroid-stimulating hormone, or TSH)
B) prolactin
C) growth hormone (GH)
D) adrenocorticotropic hormone (ACTH)
E) luteinizing hormone (LH)
Answer: D
Page Ref: 317
Bloom's: 1) Knowledge

10) Which one of the following is NOT a hormone produced by the anterior pituitary?
A) prolactin
B) adrenocorticotropic hormone (ACTH)
C) follicle-stimulating hormone (FSH)
D) antidiuretic hormone (ADH)
E) luteinizing hormone (LH)
Answer: D
Page Ref: 315, 317
Bloom's: 1) Knowledge

11) The hormone that stimulates follicle development by female ovaries and sperm development by male testes is ________.
A) luteinizing hormone (LH)
B) prolactin
C) follicle-stimulating hormone (FSH)
D) progesterone
E) antidiuretic hormone (ADH)
Answer: C
Page Ref: 317
Bloom's: 1) Knowledge

12) Hyposecretion of growth hormone during childhood leads to ________.
A) pituitary dwarfism
B) Cushing's disease
C) acromegaly
D) myxedema
E) gigantism
Answer: A
Page Ref: 315
Bloom's: 1) Knowledge
13) Releasing and inhibiting hormones produced by the hypothalamus influence the activities of the ________.
A) pineal gland
B) anterior pituitary gland
C) adrenal gland
D) posterior pituitary gland
E) thyroid gland
Answer: B
Page Ref: 313
Bloom's: 1) Knowledge

14) The two hormones released by the thyroid gland are ________.
A) calcitonin and thyroid hormone
B) calcitonin and parathyroid hormone (PTH)
C) thyroid hormone and parathyroid hormone (PTH)
D) prolactin (PRL) and oxytocin
E) oxytocin and antidiuretic hormone (ADH)
Answer: A
Page Ref: 318
Bloom's: 1) Knowledge

15) Which hormone is alternately known as vasopressin due to its effect on blood vessel diameter and blood pressure?
A) oxytocin
B) antidiuretic hormone (ADH)
C) thyroid-stimulating hormone (TSH)
D) growth hormone (GH)
E) luteinizing hormone (LH)
Answer: B
Page Ref: 314
Bloom's: 2) Comprehension

16) Which two hormones play a role in promoting the milk reflex and in maintaining breast milk production in a mother's breasts?
A) antidiuretic hormone (ADH) and thyroid hormone
B) growth hormone and glucagon
C) prolactin (PRL) and oxytocin
D) parathyroid hormone (PTH) and thyroid hormone
E) prolactin (PRL) and antidiuretic hormone (ADH)
Answer: C
Page Ref: 313, 314, 315
Bloom's: 2) Comprehension
17) Which of these hormones prods the thyroid gland to release thyroxine?
A) follicle-stimulating hormone (FSH)
B) adrenocorticotropic hormone (ACTH)
C) gonadotrophic hormones
D) thyroid-stimulating hormone (TSH)
E) luteinizing hormone (LH)
Answer:  D
Page Ref: 317, 318
Bloom's:  1) Knowledge

18) Alcohol inhibits the secretion of ________.
A) parathyroid hormone (PTH)
B) antidiuretic hormone (ADH)
C) glucagon
D) oxytocin
E) prolactin (PRL)
Answer:  B
Page Ref: 314
Bloom's:  1) Knowledge

19) The thyroid gland is located ________.
A) on top of the kidneys
B) directly below the Adam's apple
C) within the mediastinum
D) within the pancreas
E) within the parathyroid glands
Answer:  B
Page Ref: 318
Bloom's:  1) Knowledge

20) The body's major metabolic hormone is called ________.
A) prolactin
B) growth hormone
C) adrenaline
D) thyroid hormone
E) calcitonin
Answer:  D
Page Ref: 318
Bloom's:  1) Knowledge
21) The element necessary in the diet for proper thyroid function is ________.
   A) sodium
   B) potassium
   C) calcium
   D) iodine
   E) bromine
   Answer:  D
   Page Ref: 318
   Bloom's:  1) Knowledge

22) Six-year-old Timothy is small for his age and shows signs of mental retardation. What disorder do you suspect?
   A) goiter
   B) pituitary dwarfism
   C) myxedema
   D) exophthalmos
   E) cretinism
   Answer:  E
   Page Ref: 318
   Bloom's:  3) Application

23) Which of these hormones regulate calcium levels in the body?
   A) T₃ and T₄
   B) calcitonin and parathyroid hormone (PTH)
   C) oxytocin and prolactin
   D) insulin and glucagon
   E) melatonin and glucocorticoids
   Answer:  B
   Page Ref: 318, 319
   Bloom's:  2) Comprehension

24) Where is calcitonin made?
   A) hypothalamus
   B) parafollicular cells of the parathyroid gland
   C) anterior pituitary
   D) parafollicular cells of the thyroid gland
   E) follicular cells of the thyroid gland
   Answer:  D
   Page Ref: 318
   Bloom's:  1) Knowledge
25) Which of these hormones is released by the adrenal medulla?
A) sex hormones
B) aldosterone
C) cortisone
D) glucocorticoids
E) epinephrine
Answer: E
Page Ref: 323
Bloom's: 1) Knowledge

26) Rising blood levels of aldosterone cause the kidney tubules to ________.
A) reabsorb potassium
B) reabsorb sodium
C) reabsorb calcium
D) reabsorb iodine
E) reabsorb hydrogen
Answer: B
Page Ref: 321
Bloom's: 1) Knowledge

27) Tetany resulting from uncontrolled muscle spasms may indicate a malfunction of the
________
A) pineal gland
B) thymus
C) parathyroid glands
D) adrenal cortex
E) posterior pituitary
Answer: C
Page Ref: 319
Bloom's: 1) Knowledge

28) The enzyme produced by the kidneys when blood pressure drops, stimulating a release of aldosterone, is called ________.
A) cortisone
B) renin
C) cortisol
D) vasopressin
E) angiotensin
Answer: B
Page Ref: 321
Bloom's: 1) Knowledge
29) Glucocorticoids do all of the following EXCEPT ________.
A) help resist long-term stress
B) increase blood glucose levels
C) decrease edema
D) suppress inflammation
E) regulate salt content of the blood
Answer: E
Page Ref: 321
Bloom's: 1) Knowledge

30) Daniella has been diagnosed with Addison's disease. Which of the following does NOT match her signs or symptoms?
A) bronze skin tone
B) high blood pressure and edema
C) weak muscles
D) hypoglycemia
E) inability to cope with stress
Answer: B
Page Ref: 322
Bloom's: 3) Application

31) The "fight-or-flight" response triggers the release of ________.
A) antidiuretic hormone (ADH)
B) prolactin
C) growth hormone (GH)
D) epinephrine
E) melatonin
Answer: D
Page Ref: 323
Bloom's: 1) Knowledge

32) Mr. Lee says he felt scared to death when his neighbor's dog bit him. Which of the following did he NOT experience as a result of catecholamine release?
A) stimulation of the sympathetic nervous system
B) dilation of the small passages of the lungs
C) increased heart rate
D) decreased blood pressure
E) increased blood glucose levels
Answer: D
Page Ref: 323, 324
Bloom's: 3) Application
33) Insulin is produced by cells of the pancreatic islets called ________.
A) alpha cells
B) beta cells
C) delta cells
D) gamma cells
E) theta cells
Answer: B
Page Ref: 323
Bloom's: 1) Knowledge

34) Which of the following hormones decreases blood glucose levels?
A) glucocorticoids
B) epinephrine
C) growth hormone
D) insulin
E) glucagon
Answer: D
Page Ref: 323
Bloom's: 1) Knowledge

35) Which hormone works against glucagon?
A) epinephrine
B) aldosterone
C) insulin
D) cortisol
E) glucocorticoids
Answer: C
Page Ref: 323
Bloom's: 1) Knowledge

36) Which one of the following is NOT a sign of diabetes mellitus?
A) polyuria
B) polydipsia
C) moon face
D) polyphagia
E) acidosis
Answer: C
Page Ref: 324
Bloom's: 2) Comprehension
37) The pineal gland produces ________.
A) thymosin
B) melatonin
C) estrogen
D) insulin
E) cortisol
Answer: B
Page Ref: 326
Bloom's: 1) Knowledge

38) The hormone that appears to help regulate our sleep-awake cycles is ________.
A) thymosin
B) melatonin
C) progesterone
D) glucagon
E) thyroxine
Answer: B
Page Ref: 326
Bloom's: 1) Knowledge

39) The hormone responsible for the maturation of white blood cells known as T lymphocytes is ________.
A) thymosin
B) melatonin
C) aldosterone
D) progesterone
E) thyroxine
Answer: A
Page Ref: 327
Bloom's: 1) Knowledge

40) Estrogens do all of the following EXCEPT ________.
A) stimulate the development of secondary sex characteristics in females
B) stimulate growth of facial hair
C) stimulate menstruation
D) help maintain pregnancy
E) prepare the uterus to receive a fertilized egg
Answer: B
Page Ref: 327
Bloom's: 2) Comprehension
41) Which of the following is NOT an effect of testosterone?
A) maintenance of pregnancy
B) deepening of the voice
C) growth of facial hair
D) sperm production
E) development of heavy bones and muscles
Answer: A
Page Ref: 327
Bloom's: 2) Comprehension

42) Sex hormones produced by the ovaries and testes ________.
A) are protein hormones
B) are controlled by hormones produced by the adrenal cortex
C) promote the formation of sex cells
D) are produced in equal amounts in both males and females
E) are secreted in response to posterior pituitary hormones
Answer: C
Page Ref: 327
Bloom's: 1) Knowledge

43) Testosterone can be categorized as a(n) ________ hormone.
A) amine
B) glycoprotein
C) peptide
D) protein
E) steroid
Answer: E
Page Ref: 309, 329
Bloom's: 1) Knowledge

44) Which hormone is produced by the placenta that stimulates the ovaries to continue producing estrogen and progesterone?
A) human chorionic gonadotropin (hCG)
B) follicle-stimulating hormone (FSH)
C) luteinizing hormone (LH)
D) prolactin
E) oxytocin
Answer: A
Page Ref: 330
Bloom's: 1) Knowledge
45) Which hormones regulate the female's menstrual cycle?
   A) estrogens and progesterone  
   B) thymosin and melatonin  
   C) atrial natriuretic peptide (ANP) and aldosterone  
   D) androgens and testosterone  
   E) cholecystokinin and secretin  
   Answer: A  
   Page Ref: 327  
   Bloom's: 1) Knowledge

9.3 True/False Questions

1) The study of hormones and endocrine organs is known as immunology.
   Answer: FALSE  
   Page Ref: 309  
   Bloom's: 1) Knowledge

2) All hormones can arouse and bring about changes in all cells of the human body.
   Answer: FALSE  
   Page Ref: 309  
   Bloom's: 2) Comprehension

3) Most hormones are regulated by negative feedback mechanisms.
   Answer: TRUE  
   Page Ref: 311  
   Bloom's: 1) Knowledge

4) Hormones that are secreted in response to other hormones are prodded by hormonal stimuli.
   Answer: TRUE  
   Page Ref: 311  
   Bloom's: 1) Knowledge

5) The hormones secreted by the posterior pituitary are made by the hypothalamus.
   Answer: TRUE  
   Page Ref: 314  
   Bloom's: 1) Knowledge

6) Releasing and inhibiting hormones made by the hypothalamus control the release of hormones from the posterior pituitary.
   Answer: FALSE  
   Page Ref: 313  
   Bloom's: 1) Knowledge

7) The target tissue of prolactin is the female breast.
   Answer: TRUE  
   Page Ref: 315  
   Bloom's: 1) Knowledge
8) Oxytocin and antidiuretic hormone are made and released from the posterior pituitary.
Answer: FALSE
Page Ref: 313, 314
Bloom's: 1) Knowledge

9) Antidiuretic hormone inhibits urine production and promotes water reabsorption by the kidney.
Answer: TRUE
Page Ref: 314
Bloom's: 1) Knowledge

10) Antidiuretic hormone promotes sodium and water retention.
Answer: FALSE
Page Ref: 314
Bloom's: 1) Knowledge

11) Growth hormone controls the rate at which glucose is oxidized and converted to body heat and chemical energy (ATP).
Answer: FALSE
Page Ref: 315
Bloom's: 1) Knowledge

12) Thyroid hormone targets all cells of the body.
Answer: TRUE
Page Ref: 318
Bloom's: 1) Knowledge

13) Diabetes insipidus is caused by hyposcretion of insulin.
Answer: FALSE
Page Ref: 314
Bloom's: 1) Knowledge

14) Thyroid hormone is actually two iodine-containing hormones called T3 and T4.
Answer: TRUE
Page Ref: 318
Bloom's: 1) Knowledge

15) Calcitonin and parathyroid hormone (PTH) are produced by the parathyroid glands.
Answer: FALSE
Page Ref: 318, 319
Bloom's: 1) Knowledge

16) Thyroxine is produced by the follicular cells of the thyroid gland.
Answer: TRUE
Page Ref: 318
Bloom's: 1) Knowledge
17) Parathyroid hormone (PTH) is the most important regulator of blood calcium concentration.
Answer: TRUE
Page Ref: 319
Bloom's: 1) Knowledge

18) Calcitonin is antagonistic to parathyroid hormone (PTH) in the regulation of blood calcium concentration.
Answer: TRUE
Page Ref: 318, 319
Bloom's: 1) Knowledge

19) Mineralocorticoids help regulate both water and electrolyte balance in body fluids.
Answer: TRUE
Page Ref: 320, 321
Bloom's: 1) Knowledge

20) The adrenal glands are similar to the pituitary gland in that they have both glandular and neural tissue.
Answer: TRUE
Page Ref: 313, 323
Bloom's: 4) Analysis

21) The adrenal cortex makes corticosteroids.
Answer: TRUE
Page Ref: 320
Bloom's: 1) Knowledge

22) Glucocorticoids, glucagon, and epinephrine are hyperglycemic hormones.
Answer: TRUE
Page Ref: 321, 322, 324
Bloom's: 2) Comprehension

23) The glucocorticoids help the body handle long-term stress primarily by increasing blood glucose levels.
Answer: TRUE
Page Ref: 321
Bloom's: 1) Knowledge

24) Both male and female sex hormones are produced by the adrenal cortex throughout life in relatively small amounts.
Answer: TRUE
Page Ref: 321
Bloom's: 1) Knowledge
25) Hypersecretion of the sex hormones may lead to masculinization in both men and women.  
Answer: TRUE  
Page Ref: 322  
Bloom's: 1) Knowledge

26) Aldosterone release is prevented by atrial natriuretic peptide (ANP), a hormone released by the heart.  
Answer: TRUE  
Page Ref: 321  
Bloom's: 1) Knowledge

27) Adrenaline is also known as epinephrine.  
Answer: TRUE  
Page Ref: 323  
Bloom's: 1) Knowledge

28) Aldosterone raises blood glucose levels through the breakdown of fats and proteins.  
Answer: FALSE  
Page Ref: 320  
Bloom's: 1) Knowledge

29) Melatonin production peaks during the night to help regulate the body's day-night cycle.  
Answer: TRUE  
Page Ref: 326  
Bloom's: 1) Knowledge

30) The thymus gland is located in the neck wrapped around the trachea.  
Answer: FALSE  
Page Ref: 327  
Bloom's: 1) Knowledge

31) The ovaries release estrogen and progesterone in response to gonadotrophic hormones from the pituitary gland.  
Answer: TRUE  
Page Ref: 327  
Bloom's: 1) Knowledge

32) The placenta is a temporary organ formed in the uterus of pregnant women.  
Answer: TRUE  
Page Ref: 330  
Bloom's: 1) Knowledge
9.4 Matching Questions

*Match the following hormones with the endocrine gland or structure that produces it:*

A) thyroid gland  
B) adrenal medulla  
C) hypothalamus  
D) parathyroid glands  
E) pancreas  
F) adrenal cortex  
G) thymus gland  
H) anterior pituitary

1) Growth hormone  
   Page Ref: 315  
   Bloom's: 1) Knowledge

2) Prolactin  
   Page Ref: 315  
   Bloom's: 1) Knowledge

3) Adrenocorticotropic hormone  
   Page Ref: 317  
   Bloom's: 1) Knowledge

4) Thyroid-stimulating hormone  
   Page Ref: 317  
   Bloom's: 1) Knowledge

5) Luteinizing hormone  
   Page Ref: 317  
   Bloom's: 1) Knowledge

6) Oxytocin  
   Page Ref: 313  
   Bloom's: 1) Knowledge

7) Antidiuretic hormone  
   Page Ref: 314  
   Bloom's: 1) Knowledge

8) Follicle-stimulating hormone  
   Page Ref: 317  
   Bloom's: 1) Knowledge

9) Thyroxine  
   Page Ref: 318  
   Bloom's: 1) Knowledge
10) Calcitonin  
Page Ref: 319  
Bloom's: 1) Knowledge

11) Parathyroid hormone (PTH)  
Page Ref: 319  
Bloom's: 1) Knowledge

12) Aldosterone  
Page Ref: 320  
Bloom's: 1) Knowledge

13) Cortisone  
Page Ref: 321  
Bloom's: 1) Knowledge

14) Epinephrine  
Page Ref: 323  
Bloom's: 1) Knowledge

15) Glucocorticoids  
Page Ref: 321, 323  
Bloom's: 1) Knowledge

16) Insulin  
Page Ref: 323  
Bloom's: 1) Knowledge

17) Glucagon  
Page Ref: 323  
Bloom's: 1) Knowledge

18) Releasing and inhibiting hormones  
Page Ref: 313  
Bloom's: 1) Knowledge

19) Thymosin  
Page Ref: 327  
Bloom's: 1) Knowledge

20) Norepinephrine  
Page Ref: 323  
Bloom's: 1) Knowledge

Match the following actions with the appropriate hormone:

A) thyroid-stimulating hormone  
B) growth hormone  
C) antidiuretic hormone  
D) parathyroid hormone  
E) oxytocin  
F) follicle-stimulating hormone  
G) glucocorticoids  
H) insulin

21) Stimulates contraction of the uterus and milk ejection (the let-down reflex)  
Page Ref: 313  
Bloom's: 1) Knowledge

22) Raises blood calcium levels  
Page Ref: 319  
Bloom's: 1) Knowledge

23) Promotes normal cell metabolism and helps the body resist long-term stressors  
Page Ref: 318  
Bloom's: 1) Knowledge

24) Stimulates the thyroid gland to produce thyroxine  
Page Ref: 317  
Bloom's: 1) Knowledge

25) Promotes reabsorption of only water by the kidneys  
Page Ref: 314  
Bloom's: 1) Knowledge

26) Lowers blood glucose levels  
Page Ref: 323  
Bloom's: 1) Knowledge

27) Promotes the growth of skeletal muscles and long bones  
Page Ref: 315  
Bloom's: 1) Knowledge

28) Stimulates development of follicles in female ovaries and sperm development in male testes  
Page Ref: 317  
Bloom's: 1) Knowledge

9.5 Essay Questions

1) Explain the two major chemical classifications of hormones.
Answer: The amino acid-based molecules include proteins, peptides, and amines. The steroid hormones include the sex hormones made by the gonads and the hormones produced by the adrenal cortex.
Page Ref: 309
Bloom's: 2) Comprehension

2) Describe the three types of stimuli that activate the endocrine organs.
Answer: The most common stimulus is hormonal. In hormonal stimulus, endocrine organs are prodded into action by other hormones, known as tropic hormones. Another type of stimulus is humoral, in which changing blood levels of certain ions and nutrients stimulate hormone release. The third type of stimulus is neural, in which nerve fibers stimulate hormone release.
Page Ref: 311-312
Bloom's: 1) Knowledge

3) Explain the pituitary-hypothalamus relationship.
Answer: Hormones from the anterior pituitary are released in response to releasing and inhibiting hormones produced by the hypothalamus. The hypothalamus releases these hormones into the blood of the portal circulation, which connects the blood supply of the hypothalamus with that of the anterior pituitary. Hormones from the posterior pituitary are made in the hypothalamus by hypothalamic neurons. Those hormones are then stored in the posterior pituitary until their release is necessary.
Page Ref: 313
Bloom's: 3) Application

4) Discuss the role of hormones in maintaining blood calcium levels.
Answer: Parathyroid hormone, produced by the parathyroid glands, is the most important regulator of blood calcium levels. It is secreted in response to low blood calcium levels, a humoral stimulus. Parathyroid hormone activates osteoclasts to destroy bone matrix and release the calcium into the blood, raising blood calcium levels. Parathyroid hormone also targets the intestine and kidneys to absorb calcium. Parathyroid hormone works opposite to calcitonin whose job is to lower blood calcium levels through deposition to bones.
Page Ref: 319
Bloom's: 2) Comprehension

5) A weight lifter named Jake is shocked to learn that his body produces small amounts of estrogen in addition to testosterone. Explain to him where this female sex hormone is produced.
Answer: The adrenal cortex makes small amounts of both estrogen and testosterone in both males and females throughout life. Although the majority of the hormones produced in this region of the adrenal cortex are androgens, some estrogens are also formed.
Page Ref: 321
Bloom's: 2) Comprehension
6) Four-year-old Tim is extremely small for his age, and he shows signs of mental retardation. His hair is thinning and his skin is dry. His parents have read about cretinism and pituitary dwarfism as possible diagnoses for their son and have taken him to the pediatrician for tests to be run. Which diagnosis do you think is correct? Explain why.
Answer: The likely diagnosis is cretinism. Hyposecretion of the thyroid hormone in early childhood leads to cretinism. Cretinism results in dwarfism and mental retardation. Cretinism also causes hair to be scanty and the dry skin. It is unlikely Tim suffers from pituitary dwarfism. Pituitary dwarfism results from hyposecretion of growth hormone in children but does not cause the other symptoms listed.
Page Ref: 318
Bloom's: 3) Application

7) Jamie is dehydrated from playing a rough game of football on a hot summer afternoon. Explain why beer is not a good choice of beverage considering what you know about antidiuretic hormone.
Answer: Antidiuretic hormone prevents urine production and promotes water retention by the kidneys. However, alcoholic beverages inhibit ADH secretion and result in a large output of urine. Jamie is already dehydrated and alcohol will only further that situation.
Page Ref: 314
Bloom's: 3) Application

8) Discuss how renin and angiotensin II help restore low blood pressure to normal.
Answer: When blood pressure is low, the kidneys release an enzyme called renin. Renin, in turn, triggers the production of angiotensin II. As a result, angiotensin II triggers the release of aldosterone by the adrenal cortex. Aldosterone targets the kidney and promotes sodium reabsorption by the tubule cells of the kidney; water follows and is also reabsorbed when aldosterone is present in the kidney. The increased blood volume, due to water reabsorption, leads to increased blood pressure.
Page Ref: 321
Bloom's: 2) Comprehension

9) Jenny's grandfather frequently urinates and is often thirsty. What other signs or symptoms would help you to determine if he has diabetes mellitus or diabetes insipidus? Explain.
Answer: Diabetes mellitus is characterized by polyuria (excess urination), polyphagia (excess hunger), and polydipsia (excess thirst). This form of diabetes results from the hyposecretion of insulin and causes glucose to be lost in the urine. By contrast, diabetes insipidus results from the hyposecretion of antidiuretic hormone. This condition is characterized only by polyuria and polydipsia. Polyphagia is not associated with this type of diabetes and glucose is not lost in the urine. In addition, blood tests could be performed to measure the levels of glucose and antidiuretic hormone in the bloodstream.
Page Ref: 314, 316
Bloom's: 3) Application