

## Histology Midterm Examination

A

Please note: For each question, pick the one best answer.

1. One of the following is **NOT** a characteristic of the endocrine system.
  - a. Products secreted into blood
  - b. Glands with duct system
  - c. Secretes hormones
  - d. Highly vascular
2. What is the type of secretion of endocrine glands?
  - a. Mucus
  - b. Serous fluid
  - c. Hormones
  - d. Enzymes
3. The gland that is nicknamed (inaccurately) the "master gland" is the
  - a. Adrenal medulla
  - b. Adrenal cortex
  - c. Pituitary
  - d. Pineal gland
4. Which cells secrete ACTH?
  - a. Mammatrophs
  - b. Thyrotrophs
  - c. Somatotrophs
  - d. Corticotrophs
5. Acervuli cerebri or brain sand found in
  - a. Pituitary gland
  - b. Pineal gland
  - c. Pancreatic islets
  - d. Thyroid follicles
6. Which gland secretes melatonin?
  - a. Pancreas
  - b. Thyroid
  - c. Pineal gland
  - d. Adrenal gland (medulla)
7. Production and phagocytosis of thyroglobulin is the function of
  - a. Parathyroid oxyphil cell
  - b. Thyroid parafollicular cells
  - c. Thyroid follicular cells
  - d. Adrenal chromaffin cells
8. Insulin is secreted from which cell type of pancreatic islets?
  - a. Alpha cells
  - b. Beta cells
  - c. Delta cells
  - d. Acinus cells
9. One of the following is **NOT** a part of the adrenal gland?
  - a. Chromaffin cells
  - b. Pars tuberalis

- c. Zona glomerulosa
  - d. Zona fasciculata
10. Which part the adrenal gland secretes mineralocorticoids?
- a. Chromaffin cells
  - b. Zona reticularis
  - c. Zona glomerulosa
  - d. Zona fasciculata
11. What type of hormone is the adrenalin?
- a. Protein
  - b. Polysaccharides
  - c. Steroid
  - d. Catecholamine
12. Which part of the pituitary originates from the hypothalamus?
- a. Pars intermedia
  - b. Pars tuberalis
  - c. Adenohypophysis
  - d. Neurohypophysis
13. Which of the following **is NOT** part of the adenohypophysis?
- a. Pars intermedia
  - b. Pars tuberalis
  - c. Pars nervosa
  - d. All of the above are part of the adenohypophysis
14. One of the followings secretes prolactin?
- a. Thyrotrophs
  - b. Somatotrophs
  - c. Mammatrophs
  - d. Gonadotrophs
15. Which of the following cells can be classified as basophils?
- a. Gonadotrophs
  - b. Corticotrophs
  - c. Thyrotrophs
  - d. All of the above
16. Which gland secretes calcitonin?
- a. Pancreas
  - b. Thyroid
  - c. Pineal gland
  - d. Adrenal gland (cortex)
17. They may also be called C cells
- a. Thyroid principal cells
  - b. Parathyroid oxyphil cells
  - c. Thyroid parafollicular cells
  - d. Chromaffin cells
18. What does glucagon do?
- a. Increases blood  $\text{Ca}^{++}$  level
  - b. Decreases blood glucose level
  - c. Increases blood glucose level
  - d. Inhibits insulin secretion
19. One of the followings is a component of the adrenal medulla
- a. Chromaffin cells
  - b. Zona reticularis

- c. Zona glomerulosa
  - d. Zona fasciculata
20. The vast majority of cells in the pineal gland are
- a. Follicular cells
  - b. Parafollicular cells
  - c. Pinealocytes
  - d. Oxyphil cells
21. What does somatostatin do?
- a. Inhibits growth hormone release
  - b. Inhibits glucagon and insulin secretion
  - c. inhibits its own secretion
  - d. All the above is correct
22. Where are FSH and LH hormones secreted from?
- a. Pars intermedia
  - b. Pars tuberalis
  - c. Adenohypophysis
  - d. Neurohypophysis
23. One of the following **is NOT** part of the neurohypophysis?
- a. Herring bodies
  - b. Pars distalis
  - c. Pars nervosa
  - d. Infundibular stalk
24. Melanocytes stimulating hormone is secreted from
- a. Mammotrophs
  - b. Thyrotrophs
  - c. Pars intermedia
  - d. Gonadotrophs
25. Which of the following cells can be classified as an acidophil?
- a. Corticotrophs
  - b. Thyrotrophs
  - c. Gonadotrophs
  - d. None of the above
26. Secretion of epinephrine occurs in
- a. Pancreas
  - b. Pineal gland
  - c. Adrenal gland (cortex)
  - d. Adrenal gland (medulla)
27. Secretion of cortisol takes place in
- a. Pancreas
  - b. Thyroid
  - c. Adrenal gland (cortex)
  - d. Adrenal gland (medulla)
28. Cell type found in the adrenal medulla
- a. Principal cell
  - b. Oxyphil cell
  - c. Parafollicular cells
  - d. Chromaffin cells
29. Where is glucagon secreted from?
- a. Alpha cells
  - b. Beta cells

- c. F cells
  - d. Delta cells
30. The middle layer of the adrenal cortex is called
- a. Chromaffin cells
  - b. Zona reticularis
  - c. Zona glomerulosa
  - d. Zona fasciculata
31. Where antidiuretic hormone (vasopressin) is made?
- a. Somatotrophs
  - b. Corticotrophs
  - c. Paraventricular nucleus
  - d. Supraoptic nucleus
32. Where is oxytocin secreted from?
- a. Pars intermedia
  - b. Pars tuberalis
  - c. Adenohypophysis
  - d. Neurohypophysis
33. What cell type secretes ACTH?
- a. Mammotrophs
  - b. Thyrotrophs
  - c. Corticotrophs
  - d. Gonadotrophs
34. Which of the following cells can be classified as chromaffin cells?
- a. Thyrotrophs
  - b. Mammotrophs
  - c. Somatotrophs
  - d. None of the above
35. Which gland secretes T3 and T4?
- a. Thyroid
  - b. Pineal gland
  - c. Adrenal gland (cortex)
  - d. Adrenal gland (medulla)
36. One of the following secretes small amount of sex hormones?
- a. Pancreas
  - b. Thyroid
  - c. Pineal gland
  - d. Adrenal gland
37. Which of the following secretes pancreatic polypeptides?
- a. F cells
  - b. Alpha cells
  - c. Beta cells
  - d. Delta cells
38. Where is somatostatin secreted from?
- a. Alpha cells
  - b. Beta cells
  - c. Gamma cells
  - d. Delta cells
39. Which of the following is seen the innermost portion the adrenal cortex?
- a. Chromaffin cells
  - b. Zona reticularis

- c. Zona glomerulosa
  - d. Zona fasciculata
40. What does chief cell of parathyroid secrete?
- a. Calcitonin
  - b. Parathormone
  - c. Intermedin
  - d. Catecholamines
41. Parathormone increases blood calcium level through
- a. Inhibiting  $\text{Ca}^{++}$  absorption
  - b. Decreasing  $\text{Ca}^{++}$  reabsorption
  - c. Stimulating osteoclasts action
  - d. Stimulating of osteoblasts action
42. Where is growth hormone secreted from?
- a. Pars intermedia
  - b. Pars tuberalis
  - c. Pars distalis
  - d. Neurohypophysis
43. What cell type secretes TSH?
- a. Thyrotrophs
  - b. Somatotrophs
  - c. Corticotrophs
  - d. Gonadotrophs
44. Which of the following cells can be classified as steroid secreting cells?
- a. Alpha cells
  - b. Beta cells
  - c. Leydig cells
  - d. Spermatogonia
45. Which gland secretes norepinephrine?
- a. Pancreas
  - b. Pineal gland
  - c. Adrenal gland (cortex)
  - d. Adrenal gland (medulla)
46. Acervuli cerebri is the
- a. Brain sand
  - b. Herring body
  - c. Nissl body
  - d. Corpus albicans
47. What secretes aldosterone?
- a. Pancreatic D cells
  - b. Thyroid follicular cells
  - c. Pinealocytes
  - d. Adrenal cortex
48. What is the most common cell in the pineal gland?
- a. Pinealocytes
  - b. Oxyphil cell
  - c. Astrocytes
  - d. Follicular cells
49. Where is melatonin secreted from?
- a. Chromaffin cells
  - b. Zona reticularis

- c. Zona glomerulosa
  - d. None of the above
50. The outer layer of the adrenal cortex is
- a. Chromaffin cells
  - b. Zona reticularis
  - c. Zona glomerulosa
  - d. Zona fasciculata
51. What type of hormone is aldosterone?
- a. Glucocorticoids
  - b. Mineralocorticoids
  - c. Sex hormone
  - d. Catecholamine
52. What is another term for the anterior pituitary?
- a. Adenohypophysis
  - b. Infundibular stalk
  - c. Neurohypophysis
  - d. Pars tuberalis
53. Another term to the endocrine portion of the pancreas
- a. Islets of Langerhans
  - b. Rathk's pouch
  - c. Rathk's cyst
  - d. Acini
54. Calcitonin is secreted by
- a. Principal cell
  - b. Oxyphil cell
  - c. Parafollicular cells
  - d. Follicular cells
55. It **is NOT** the most abundant cell type in parathyroid gland?
- a. Oxyphil cell
  - b. Parafollicular cells
  - c. Follicular cells
  - d. Chromaffin cells
56. Which of the following secretes mineralocorticoids?
- a. Chromaffin cells
  - b. Zona reticularis
  - c. Zona glomerulosa
  - d. Zona fasciculata
57. What is another term for the posterior lobe of the pituitary?
- a. Pars intermedia
  - b. Pars tuberalis
  - c. Pars distalis
  - d. Pars nervosa
58. What is the classification of the pancreas?
- a. Seromucoid gland
  - b. Endocrine gland only
  - c. Exocrine gland only
  - d. Both endocrine and exocrine
59. Which cells produce testosterone?
- a. Spermatogonia A
  - b. Leydig cells

- c. Sertoli cells
  - d. Myoid cells
60. Which of the following is produced by the Leydig cells?
- a. Progesterone
  - b. Androgen binding protein
  - c. Testosterone
  - d. Anti-Mullarian hormone
61. Which of the following **is NOT** considered part of the male genital duct system?
- a. Rete testis
  - b. Seminiferous Tubules
  - c. Ductus deferens
  - d. Ductus epididymidis
62. What is the surface modification seen on the epididymal epithelium?
- a. Microvilli
  - b. Stereocilia
  - c. Kinocilia
  - d. Keratinization
63. What type of hormone is testosterone?
- a. Protein
  - b. Steroid
  - c. Catecholamine
  - d. None of the above
64. Only one of the following is true?
- a. There is one corpus cavernosa and one corpus spongiosum
  - b. There is one corpus cavernosa and two corpora spongiosum
  - c. There are two corpora cavernosa and one corpus spongiosum
  - d. There are two corpora cavernosa and two corpora spongiosum
65. Which gland has pars disseminata and body?
- a. Prostate gland
  - b. Vesicular gland
  - c. Cowper's gland
  - d Urethral gland
66. The most commonly seen type of epithelium in the prostatic acini is
- a. Transitional
  - b. Simple columnar
  - c. Stratified squamous
  - d. Simple squamous
67. The lining epithelium of the epididymis is
- a. Pseudostratified
  - b. Simple columnar
  - c. Stratified squamous
  - d. Simple squamous
68. Which cells are housing the process of spermatogenesis?
- a. Myoid cells
  - b. Leydig cells
  - c. Sertoli cells
  - d. Spermatogonia
69. Sertoli cells produce
- a. FSH
  - b. Androgen binding protein

- c. Testosterone
  - d. Both a and b
70. Which of the following **is NOT** a male accessory gland?
- a. Prostate
  - b. Bulbourethral gland
  - c. Seminal vesicles
  - d. Ductus epididymidis
71. What is another term for a bulbourethral gland?
- a. Vesicular gland
  - b. Prostate gland
  - c. Cowper's gland
  - e. Brunner's gland
72. Spherical structures may be seen prostatic end pieces and ducts are called
- a. Herring bodies
  - b. Corpora lutea
  - c. Corpora cavernosa
  - d. Concretions
73. What type of epithelium lines the seminal vesicles?
- a. Pseudostratified
  - b. Simple columnar
  - c. Stratified squamous
  - d. Simple squamous
  - e. Simple cuboidal
74. What type of epithelium lines the vas deferens?
- a. Pseudostratified
  - b. Stratified squamous
  - c. Simple squamous
  - d. Simple cuboidal
75. What type of gland composes the vesicular gland?
- a. Simple straight tubular gland
  - b. Simple coiled tubular gland
  - c. Simple alveolar gland
  - d. Compound tubuloalveolar gland
76. What are the septa of the ruminant vesicular gland?
- a. Loose irregular connective tissue
  - b. Smooth muscle
  - c. Adipose tissue
  - d. Dense irregular connective tissue
77. How many layers of smooth muscle are in the wall of vas deferens?
- a. 1
  - b. 2
  - c. 3
  - d. 4
78. In the penis, how many corpora cavernosa are there?
- a. 1
  - b. 2
  - c. 3
  - d. 4
79. One of the following are the earliest cells of spermatogenesis
- a. Primary spermatocytes
  - b. Secondary spermatocytes

- c. Spermatids
  - d. Spermatogonia
80. Which cells are the "nurses or mothers cells"?
- a. Leydig cells
  - b. Sertoli cells
  - c. Spermatogenic cells
  - d. Both c and d
81. What are the largest spermatogenic cells with visible chromosomes?
- a. Spermatogonia A
  - b. Early spermatids
  - c. Sperm cells
  - d. Primary spermatocytes
82. Which have the shortest life span in the spermatogenic cells?
- a. Spermatogonia A
  - b. Early spermatids
  - c. Late spermatids
  - d. Secondary spermatocytes
83. What makes the blood-testes barrier?
- a. Spermatogonia A
  - b. Early spermatids
  - c. Late spermatids
  - d. Sertoli cells
84. The "cap" covers the anterior portion of a spermatozoon nucleus is the
- a. Tail
  - b. Acrosome
  - c. End piece
  - d. Middle piece
85. What is another term for the corpus cavernosum urethrae?
- a. Corpora cavernosa
  - b. Corpus spongiosum
  - c. Glans penis
  - d. Corpora amylasia
86. How many corpus spongiosum are there?
- a. 1
  - b. 2
  - c. 3
  - d. 4
87. What is the mature sperm cell?
- a. Primary spermatocytes
  - b. Spermatogonia
  - c. Spermatids
  - d. Spermatozoa
88. The inner part of the ovary is called
- a. Follicle
  - b. Germinal epithelium
  - c. Medulla
  - d. Cortex
89. In which ovarian follicle the fluid begins to appear?
- a. Primordial follicle
  - b. Primary follicle

- c. Secondary follicle
  - d. Mature follicle
90. What is the cavity within a mature ovarian follicle?
- a. Atresia
  - b. Theca folliculi
  - c. Zona pellucida
  - d. Antrum
91. What is the main hormone secreted from the theca cells?
- a. FSH
  - b. LH
  - c. Estrogen
  - d. Progesterone
92. What is the female organ where oogenesis occurs?
- a. Ovary
  - b. Ovulation
  - c. Oocyte
  - d. Uterine tube
93. Which stage of the follicle is surrounded by flattened (squamous) follicular cells?
- a. Primordial follicle
  - b. Primary follicle
  - c. Secondary follicle
  - d. Graafian follicle
94. Which one of the following is ovulated?
- a. Graafian follicle
  - b. Theca folliculi
  - c. Granulosa cells
  - d. Antrum
95. What is the most outer covering of the ovary?
- a. Ovarian cortex
  - b. Germinal epithelium
  - c. Ovarian medulla
  - d. Tunica albuginea
96. During early pregnancy, what secretes progesterone?
- a. Corpus luteum
  - b. Granulosa cells
  - c. Atretic follicles
  - d. Placenta
97. Which structure in the ovary contains the oocyte?
- a. Ovarian follicles
  - b. Germinal epithelium
  - c. Ovarian medulla
  - d. Cortical stroma
98. Which follicular stage is quiescent and occurs in clusters?
- a. Primordial follicle
  - b. Atretic follicle
  - c. Secondary follicle
  - d. Mature follicle
99. At which stage of follicular development theca folliculi first appear?
- a. Primordial follicle
  - b. Primary follicle

- c. Secondary follicle
  - d. Mature follicle
100. What is the glycoprotein coat located between the oocyte and the granulosa cells?
- a. Graafian follicle
  - b. Theca folliculi
  - c. Zona pellucida
  - d. Antrum
101. What is the former name of surface ovarian epithelium?
- a. Follicular cells
  - b. Germinal epithelium
  - c. Large lutein cells
  - d. Tunica albuginea
102. What is a mature ovarian follicle called?
- a. Oogenesis
  - b. Ovary
  - c. Ovulation
  - d. Graafian
103. Which stage of the follicle has a single layer of cuboidal cells around oocyte?
- a. Primordial follicle
  - b. Primary follicle
  - c. Secondary follicle
  - d. Mature follicle
104. What is another term for the PAS positive inclusions found in granulosa cells?
- a. Herring bodies
  - b. Nissl granules
  - c. Call-Exner bodies
  - d. Lutein pigment
105. What process occurs to the regressed follicles?
- a. Oogenesis
  - b. Atresia
  - c. Ovulation
  - d. Maturation
106. The connective tissue layer around the secondary follicle is termed
- a. Graafian follicle
  - b. Theca folliculi
  - c. Granulosa cells
  - d. Zona pellucida
107. Ovulation is the process in which
- a. Follicles regress
  - b. Oocyte releases
  - c. Nuclear becomes pyknotic
  - d. Chromatolysis
108. Connective tissue layer surrounding the ovary is called
- a. Follicular theca
  - b. Germinal epithelium
  - c. Tunica albuginea
  - d. Cortex
109. In the female, what is the correct term for granulosa and theca cells atrophy?
- a. Oogenesis
  - b. Obliterative atresia

- c. Ovulation
  - d. Corpora lutea
- 110. What is another term for follicular cells of the ovary?**
- a. Graffian follicle
  - b. Theca folliculi
  - c. Granulosa cells
  - d. Zona pellucida

**111. What is endometrium?**

- a) Uterus muscular layer
- b) Uterine tube mucosa
- c) Uterus mucosa and submucosa
- d) Uterus serosa

**112. Where fertilization occurs?**

- a) Uterine tube isthmus
- b) Uterine tube infundibulum
- c) Uterine tube ampulla
- d) Uterus endometrium

**113. The lining epithelium of vaginal mucosa is mostly**

- a) Simple squamous epithelium
- b) Stratified cuboidal epithelium
- c) Stratified squamous epithelium
- d) Simple columnar epithelium

## **Cytology**

Which of the following is NOT a membranous organelle?

- a. Lysosomes
- b. Peroxisomes
- c. Mitochondria
- d. Ribosomes
- e. Endoplasmic reticulum

Which organelle contains digestive enzymes?

- a. Rough endoplasmic reticulum
- b. Smooth endoplasmic reticulum
- c. Lysosome
- d. Golgi apparatus
- e. Mitochondria

3.

Which organelle is considered the powerhouse of the cell?

- a. Rough endoplasmic reticulum
- b. Smooth endoplasmic reticulum
- c. Lysosome
- d. Golgi apparatus
- e. Mitochondria

Answer: e

4.

What structure is at the base of cilia?

- a. Ribosomes
- b. Peroxisome
- c. Microfilaments
- d. Centrioles
- e. Nucleoli

Answer: d

5.

Which of the following is NOT considered an inclusion?

- a. Pigment
- b. Glycogen
- c. Lipid
- d. Secretory granules
- e. Mitochondria

6.

Collectively, what is the cytoplasm and nucleus called?

- a. Plasmalemma
- b. Glycocalyx
- c. Protoplasm
- d. Cristae
- e. Ground substance

How thick is the plasma membrane?

- a. 8-10 angstroms
- b. 8-10 nanometers
- c. 8-10 micrometers
- d. 8-10 millimeters
- e. None of the above

8.

What is the term for the general process that cells use to expunge material from the cell?

- a. Endocytosis
- b. Exocytosis
- c. Pinocytosis
- d. Phagocytosis
- e. Active transport

9.

Which organelle sorts and packages proteins within a cell?

- a. Rough endoplasmic reticulum
- b. Smooth endoplasmic reticulum
- c. Lysosome
- d. Golgi apparatus
- e. Mitochondria

10.

Which of the following is NOT a membranous organelle?

- a. Lysosomes
- b. Filaments

- c. Peroxisomes
- d. Mitochondria
- e. Endoplasmic reticulum

What are the folds on the inner mitochondrial membrane called?

- a. Plasmalemma
- b. Glycocalyx
- c. Protoplasm
- d. Cristae
- e. Ground substance

2.

Which organelle is involved in lipid metabolism?

- a. Rough endoplasmic reticulum
- b. Smooth endoplasmic reticulum
- c. Lysosome
- d. Golgi apparatus
- e. Mitochondria

Which organelle contains detoxifying enzymes?

- a. Ribosomes
- b. Peroxisome
- c. Microfilaments
- d. Centrioles
- e. Nucleoli

4.

Which of the following is NOT a membranous organelle?

- a. Microtubules
- b. Lysosomes
- c. Peroxisomes
- d. Mitochondria
- e. Endoplasmic reticulum

5.

What is the limiting membrane of a cell?

- a. Plasmalemma
- b. Glycocalyx
- c. Protoplasm
- d. Cristae
- e. Ground substance

6.

What is also called a low resistance junction?

- a. Tight junction
- b. Gap junction
- c. Junctional epithelium
- d. Junctional complex
- e. None of the above

7.

Which of the following is an organelle?

- a. Pigment
- b. Glycogen
- c. Lipid
- d. Secretory granules
- e. Mitochondria

8.

What is the term for the general process that cells use to bring things into the cell?

- a. Endocytosis
- b. Exocytosis
- c. Pinocytosis
- d. Phagocytosis
- e. Active transport

9.

Which organelle produces protein for export?

- a. Rough endoplasmic reticulum
- b. Smooth endoplasmic reticulum
- c. Lysosome
- d. Golgi apparatus
- e. Mitochondria

10.

Where are ribosomes constructed?

- a. Cytoskeleton
- b. Peroxisome
- c. Microfilaments
- d. Centrioles
- e. Nucleoli

1.

What is the term for the process used by cells for the transport in of particulate matter?

- a. Endocytosis
- b. Exocytosis
- c. Pinocytosis
- d. Phagocytosis
- e. Active transport

2.

What is another term for the cytoplasm outside of organelles?

- a. Plasmalemma
- b. Glycocalyx
- c. Protoplasm
- d. Cristae
- e. Ground substance

3.

What is the a small clear space within a cell?

- a. Space of Disse

- b. Space of Mall
- c. Vacuole
- d. Lacuna
- e. Howship's lacuna

4.

Which of the following is NOT a membranous organelle?

- a. Lysosomes
- b. Peroxisomes
- c. Centrioles
- d. Mitochondria
- e. Endoplasmic reticulum

5.

What is the polysaccharide coating that is sometimes found on the cell membrane?

- a. Plasmalemma
- b. Glycocalyx
- c. Protoplasm
- d. Cristae
- e. Ground substance

6.

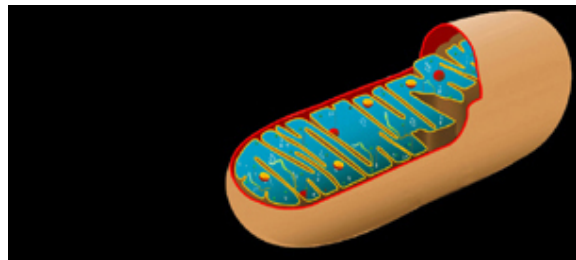
What process is nicknamed "cell drinking"?

- a. Endocytosis
- b. Exocytosis
- c. Pinocytosis
- d. Phagocytosis
- e. Active transport

7.

Which organelle is studded with ribosomes?

- a. Rough endoplasmic reticulum
- b. Smooth endoplasmic reticulum
- c. Lysosome
- d. Golgi apparatus
- e. Mitochondria



8.

Where is the site of protein synthesis?

- a. Ribosomes
- b. Peroxisome
- c. Microfilaments
- d. Centrioles
- e. Nucleoli

9.

What structure contributes to the cells cytoskeleton?

- a. Ribosomes
- b. Peroxisome
- c. Microfilaments

- d. Centrioles
- e. Nucleoli

## **Epithelium**

What type of tissue lines the bladder?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Transitional epithelium

2.

What type of tissue lines most ducts?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Transitional epithelium

3.

What type of epithelium is associated with goblet cells?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Pseudostratified epithelium

4.

What type of epithelial cells are as tall as they are wide?

- a. Simple
- b. Stratified
- c. Squamous
- d. Cuboidal
- e. Columnar

5.

What do you call the simple squamous epithelium that lines the blood vessels?

- a. Epithelioid tissue
- b. Mesothelium
- c. Endothelium
- d. Transitional
- e. Pseudostratified

6.

What cell type makes up the mucosa of the gallbladder?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium

- d. Stratified squamous epithelium
- e. Transitional epithelium

7.

Which of the following is lined by a serosa?

- a. Genitourinary tract
- b. Peritoneal cavity
- c. Respiratory tract
- d. Alimentary canal
- e. All of the above are lined by a serosa

8.

What type of gland secretes its product through a duct or tube?

- a. Endocrine gland
- b. Multicellular gland
- c. Exocrine gland
- d. All of the above
- e. None of the above

9.

What is a gland called if the secretory portion is flask shaped?

- a. Simple gland
- b. Compound gland
- c. Tubular
- d. Alveolar
- e. Tubuloalveolar

10.

What forms the brush border?

- a. Microvilli
- b. Stereocilia
- c. Cilia
- d. Keratinization
- e. Both a and b

What type of epithelium lines the trachea?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Pseudostratified epithelium

2.

What type of tissue lines blood vessels?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Transitional epithelium

3.

What type of epithelium is more than one layer thick?

- a. Simple
- b. Stratified
- c. Squamous
- d. Cuboidal
- e. Columnar

4.

What do you call a tissue composed of a conglomeration of cells which are tightly packed together, yet which does not have a free surface? An example of such a tissue would be the parenchyma of the adrenal gland.

- a. Epithelioid tissue
- b. Mesothelium
- c. Endothelium
- d. Transitional
- e. Pseudostratified

5.

What type of epithelium appears stratified, but is not?

- a. Epithelioid tissue
- b. Mesothelium
- c. Endothelium
- d. Transitional
- e. Pseudostratified

6.

Which of the following is lined by a mucosa?

- a. Peritoneal cavity
- b. Pericardial cavity
- c. Pleural cavity
- d. Alimentary canal
- e. All of the above are lined by a mucosa

7.

What type of gland secretes its product directly into the bloodstream?

- a. Endocrine gland
- b. Multicellular gland
- c. Exocrine gland
- d. All of the above
- e. None of the above

8.

What is a gland called if it has an unbranched duct?

- a. Simple gland
- b. Compound gland
- c. Tubular
- d. Alveolar
- e. Tubuloalveolar

9.

What is a gland called if the secretory portion is tube shaped ending in a flask shaped area at the terminus?

- a. Simple gland
- b. Compound gland
- c. Tubular
- d. Alveolar
- e. Tubuloalveolar

10.

What is the surface modification seen on the cells of the epididymis?

- a. Microvilli
- b. Stereocilia
- c. Cilia
- d. Keratinization
- e. Both a and b

What type of epithelium forms the epidermis?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Pseudostratified epithelium

2.

What type of tissue lines most of the gastrointestinal tract?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Transitional epithelium

3.

What type of tissue forms the alveoli in the lung?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Pseudostratified epithelium

4.

What type of epithelium is composed of flat cells?

- a. Simple
- b. Stratified
- c. Squamous
- d. Cuboidal
- e. Columnar

5.

What do you call the simple squamous epithelium that lines the abdominal cavity?

- a. Epithelioid tissue

- b. Mesothelium
- c. Endothelium
- d. Transitional
- e. Pseudostratified

6.

What type of epithelium is composed of cells which all touch the basement membrane and is only one cell layer thick?

- a. Stratified squamous epithelium
- b. Transitional epithelium
- c. Stratified cuboidal epithelium
- d. Pseudostratified epithelium
- e. None of the above

7.

Which of the following is NOT lined by a mucosa?

- a. Genitourinary tract
- b. Pericardial cavity
- c. Respiratory tract
- d. Alimentary canal
- e. All of the above are lined by a mucosa

8.

What is a gland called if it has an branched duct?

- a. Simple gland
- b. Compound gland
- c. Tubular
- d. Alveolar
- e. Tubuloalveolar

9.

What are finger like projections on the surface of some cells called?

- a. Microvilli
- b. Stereocilia
- c. Cilia
- d. Keratinization
- e. Both a and b

10.

What cell surface modification is made of microtubules?

- a. Microvilli
- b. Stereocilia
- c. Cilia
- d. Keratinization
- e. Both a and b

What type of tissue composes the kidney tubules?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium

- d. Stratified squamous epithelium
- e. Transitional epithelium

2.

What type of tissue lines the esophagus?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Transitional epithelium

3.

What type of epithelium is one cell layer thick?

- a. Simple
- b. Stratified
- c. Squamous
- d. Cuboidal
- e. Columnar

4.

What type of epithelial cells are taller than they are wide?

- a. Simple
- b. Stratified
- c. Squamous
- d. Cuboidal
- e. Columnar

5.

What type of epithelium has dome shaped cells on the apical surface?

- a. Epithelioid tissue
- b. Mesothelium
- c. Endothelium
- d. Transitional
- e. Pseudostratified

6.

Which of the following is NOT lined by a serosa?

- a. Peritoneal cavity
- b. Pericardial cavity
- c. Pleural cavity
- d. Respiratory tract
- e. All of the above are lined by a serosa

7.

Which of the following is a unicellular gland?

- a. Squamous cell
- b. Goblet cell
- c. Basal cell
- d. Basket cell
- e. Sertoli cell

8.

What forms the striated border?

- a. Microvilli
- b. Stereocilia
- c. Cilia
- d. Keratinization
- e. Both a and b

9.

What is a characteristic of the cells in the epidermis of the skin?

- a. Microvilli
- b. Stereocilia
- c. Cilia
- d. Keratinization
- e. Both a and b

10.

What is another term for an acinar gland?

- a. Simple gland
- b. Compound gland
- c. Tubular
- d. Alveolar
- e. Tubuloalveolar

## **Connective tissue**

Which of the following is NOT primarily composed of connective tissue?

- a. Blood
- b. Bone
- c. Tendon
- d. Intervertebral disc
- e. Myometrium

2.

Which of the following is NOT a fiber found in connective tissue?

- a. Collagen fiber
- b. Elastic fiber
- c. Reticular fiber
- d. Purkinje fiber
- e. All of the above are fibers found in connective tissue

3.

Which connective tissue cell type contains properties of smooth muscle cells?

- a. Fibroblast
- b. Myofibroblast
- c. Histiocyte
- d. Plasma cell
- e. Mast cell

4.

Which cell is a connective tissue macrophage?

- a. Kupffer cells
- b. Histiocyte
- c. Dust cell
- d. Langerhans cell
- e. Microglia

5.

Which of the following can be classified as "specialized connective tissue"?

- a. Mesenchyme
- b. Mucous connective tissue
- c. Dense connective tissue
- d. Blood
- e. Loose connective tissue

6.

Which of the following can be classified as "embryonic connective tissue"?

- a. Cartilage
- b. Mucous connective tissue
- d. Adipose tissue
- d. Bone
- e. Blood

7.

What type of tissue makes up the dermis of the skin?

- a. Mucous connective tissue
- b. Mesenchyme
- c. Loose irregular connective tissue
- d. Dense irregular connective tissue
- e. Dense regular connective tissue

8.

What type of adipose tissue tends to increase as humans age?

- a. Brown adipose tissue
- b. White adipose tissue
- c. Unilocular adipose tissue
- d. Multilocular adipose tissue
- e. Both b and c

9.

Which of the following would be best suited to differentiate collagen fibers from other fibers?

- a. Wright's stain
- b. Hematoxylin and eosin stain
- c. Sudan stain
- d. Silver impregnation
- e. Masson's trichrome stain

1.

Which of the following is NOT primarily composed of connective tissue?

- a. Bone marrow
- b. Articular cartilage
- c. Heart

- d. Mesenchyme
- e. Fat

2.

Which one of these cells is not a cell type routinely found in loose connective tissue?

- a. Fibroblast
- b. Microglia
- c. Histiocyte
- d. Plasma cell
- e. Mast cell

3.

Which connective tissue cell is a tissue macrophage?

- a. Fibroblast
- b. Myofibroblast
- c. Histiocyte
- d. Plasma cell
- e. Mast cell

4.

Which of the following can be classified as "specialized connective tissue"?

- a. Cartilage
- b. Loose connective tissue
- c. Mesenchyme
- d. Dense connective tissue
- e. Mucous connective tissue

5.

Which of the following can be classified as "connective tissue proper"?

- a. Adipose tissue
- b. Dense irregular connective tissue
- c. Bone
- d. Blood
- e. Cartilage

6.

What type of tissue is Wharton's jelly?

- a. Mucous connective tissue
- b. Mesenchyme
- c. Loose irregular connective tissue
- d. Dense irregular connective tissue
- e. Dense regular connective tissue

7.

What type of tissue is a tendon composed of?

- a. Mucous connective tissue
- b. Mesenchyme
- c. Loose irregular connective tissue
- d. Dense irregular connective tissue
- e. Dense regular connective tissue

8.

What does connective tissue develop from?

- a. Mesothelium
- b. Mesenchyme
- c. Mesangial cells
- d. Mesentery
- e. Wharton's jelly

9.

What color do elastic fibers stain with Verhoeff Elastic stain?

- a. Red/Orange
- b. Pink/red
- c. Purple/Red
- d. Blue/black
- e. Green/blue

10.

Which of the following is a component of the ground substance?

- a. Hyaluronic acid
- b. Proteoglycans
- c. Glycosaminoglycans
- d. Chondroitin sulfate
- e. All of the above

1.

Which of the following is NOT primarily composed of connective tissue?

- a. Spinal cord
- b. Pubic symphysis
- c. Ligament
- d. Areolar tissue
- e. Organ capsule

2.

Which connective tissue cell type produces the ground substance in connective tissue?

- a. Fibroblast
- b. Myofibroblast
- c. Histiocyte
- d. Plasma cell
- e. Mast cell

3.

Which connective tissue cell is derived from B lymphocytes?

- a. Fibroblast
- b. Myofibroblast
- c. Histiocyte
- d. Plasma cell
- e. Mast cell

4.

Which of the following can be classified as "specialized connective tissue"?

- a. Mesenchyme

- b. Bone
- c. Dense connective tissue
- d. Mucous connective tissue
- e. Loose connective tissue

5.

Which of the following can be classified as "connective tissue proper"?

- a. Bone
- b. Blood
- c. Adipose tissue
- d. Loose irregular connective tissue
- e. Cartilage

6.

What type of connective tissue is an undifferentiated tissue found in the embryo?

- a. Mucous connective tissue
- b. Mesenchyme
- c. Loose irregular connective tissue
- d. Dense irregular connective tissue
- e. Dense regular connective tissue

7.

What type of tissue is a ligament composed of?

- a. Mucous connective tissue
- b. Mesenchyme
- c. Loose irregular connective tissue
- d. Dense irregular connective tissue
- e. Dense regular connective tissue

8.

Which of the following is not associated with connective tissue?

- a. Tightly packed cells
- b. Extracellular fibers
- c. Tissue fluid
- d. Ground substance
- e. None of the above; all of the above are seen with connective tissue

9.

Which of the following would be best suited to visualize lipid?

- a. Wright's stain
- b. Hematoxylin and eosin stain
- c. Sudan stain
- d. Silver impregnation
- e. Masson's trichrome stain

10.

A beauty treatment for the reduction of wrinkles is the injection of hyaluronic acid into the wrinkle. What is hyaluronic acid?

- a. Dermatan sulfate
- b. Proteoglycan
- c. Glycosaminoglycan

- d. Chondroitin sulfate
- e. Keratan sulfate

1.

Which is the most abundant fiber in connective tissue?

- a. Collagen fiber
- b. Elastic fiber
- c. Reticular fiber
- d. Purkinje fiber
- e. Muscle fibers

2.

Which connective tissue cell type produces collagen?

- a. Fibroblast
- b. Connective tissue macrophage
- c. Histiocyte
- d. Plasma cell
- e. Mast cell

3.

Which connective tissue cell type secretes histamine?

- a. Fibroblast
- b. Myofibroblast
- c. Histiocyte
- d. Plasma cell
- e. Mast cell

4.

Which of the following can be classified as "specialized connective tissue"?

- a. Loose connective tissue
- b. Mesenchyme
- c. Adipose tissue
- d. Mucous connective tissue
- e. Dense connective tissue

5.

Which of the following can be classified as "embryonic connective tissue"?

- a. Adipose tissue
- b. Bone
- c. Blood
- d. Cartilage
- e. Mesenchyme

6.

What is areolar tissue?

- a. Mucous connective tissue
- b. Mesenchyme
- c. Loose irregular connective tissue
- d. Dense irregular connective tissue
- e. Dense regular connective tissue

7.

What type of adipose tissue tends to decrease as humans age?

- a. Brown adipose tissue
- b. White adipose tissue
- c. Unilocular adipose tissue
- d. Multilocular adipose tissue
- e. Both a and d

8.

Which of the following would be best suited to visualize reticular fibers?

- a. Wright's stain
- b. Hematoxylin and eosin stain
- c. Sudan stain
- d. Silver impregnation
- e. Masson's trichrome stain

## **Cartilage**

1.

What type of basic tissue type is cartilage?

- a. Muscle
- b. Nervous
- c. Cartilage
- d. Epithelium
- e. Connective tissue

2.

How many types of cartilage are there?

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

3.

What do you call the space where a chondrocyte sits in?

- a. Space of Disse
- b. Space of Mall
- c. Vacuole
- d. Lacuna
- e. Howship's Lacuna

4.

What stain would be best to demonstrate the elastic fibers in elastic cartilage?

- a. Wright's stain
- b. Hematoxylin and eosin stain
- c. Sudan stain
- d. Silver impregnation
- e. Resorcin fuchsin and orcein

5.

Which type of cartilage is found in the walls of the eustachian tube?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

6.

Which type of cartilage forms the skeleton of the fetus?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

7.

What type of tissue makes up the "Adam's apple"?

- a. Hyaline cartilage
- b. Fibrocartilage
- c. Elastic cartilage
- d. Both a and b
- e. Both a and c

8.

Which type of cartilage forms the intervertebral disc?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

9.

Which type of cartilage forms the hammer, anvil and stirrup?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

10.

Which type of cartilage is characterized by the presence of elastic fibers?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

11.

Which type of cartilage is highly vascular?

- a. Hyaline cartilage

- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

1.

What cell produces the cartilaginous matrix?

- a. Chondrocyte
- b. Chondroblast
- c. Osteocyte
- d. Osteoclast
- e. Bone lining cell

2.

Which type of cartilage is found in the larynx?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. Both a and b
- e. All of the above

3. Which of the following is NOT a glycosaminoglycan in cartilage?

- a. Chondroitin sulfate
- b. Proteoglycans
- c. Keratan sulfate
- d. Hyaluronic acid
- e. All of the above are glycosaminoglycans in cartilage

4.

Which type of cartilage is characterized by a glassy matrix?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

5.

Which type of cartilage is characterized by the presence of chondrocytes sitting in lacunae?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

6.

Which type of cartilage is the most abundant?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. Hyaline cartilage and elastic cartilage equally
- e. Elastic cartilage and fibrocartilage equally

7.

Which type of cartilage forms the articular surface on bones?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

8.

Which type of cartilage is found in the external ear?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

9.

Costal cartilage is composed of what type of cartilage?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

10.

Which type of cartilage forms the symphysis pubis?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

11.

What structure is called white cartilage?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. Compact bone
- e. Spongy bone

1.

What is the connective tissue covering which surrounds cartilage?

- a. Perimysium
- b. Periosteum
- c. Perichondrium
- d. Perineurium
- e. Endosteum

2.

Where does cartilage come from?

- a. Ectoderm

- b. Endoderm
- c. Mesenchyme
- d. Connective tissue
- e. None of the above

3.

What is the mature cell in cartilage called?

- a. Chondrocyte
- b. Chondroblast
- c. Osteocyte
- d. Osteoclast
- e. Bone lining cell

4.

Regarding the blood supply to cartilage:

- a. Cartilage has minimal circulation
- b. Cartilage has a dual circulation
- c. Cartilage is highly vascular
- d. Cartilage is avascular
- e. There is nothing unique about the blood supply to cartilage

5.

Which type of cartilage is characterized by the presence of thick bundles of collagen fibers?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

6.

What percent of the matrix of cartilage is water?

- a. 0
- b. 10-40
- c. 40-60
- d. 60-80
- e. 80-100

7.

Which type of cartilage forms the epiphyseal growth plate?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

8.

What type of tissue makes up the rings of the trachea?

- a. Hyaline cartilage
- b. Fibrocartilage
- c. Elastic cartilage

- d. Both a and b
- e. Both a and c

9.

What type of tissue makes up the epiglottis?

- a. Hyaline cartilage
- b. Fibrocartilage
- c. Elastic cartilage
- d. Both a and b
- e. Both a and c

10.

Which type of cartilage is present in the temporomandibular joint?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. All of the above
- e. None of the above

11.

What structure is called yellow cartilage?

- a. Hyaline cartilage
- b. Elastic cartilage
- c. Fibrocartilage
- d. Compact bone
- e. Spongy bone

## **Bone**

1.

What is compact bone?

- a. Dense bone
- b. Woven bone
- c. Immature bone
- d. Cancellous bone
- e. Spongy bone

2.

What cell is involved in bone resorption?

- a. Osteoclast
- b. Osteon
- c. Osteocyte
- d. Osteoblast
- e. Osteoid

3.

What type of basic tissue type is bone?

- a. Epithelium
- b. Connective tissue
- c. Muscle

- d. Nervous
- e. Bone

4.

What is woven bone?

- a. Cancellous bone
- b. Compact bone
- c. Dense bone
- d. Immature bone
- e. Spongy bone

5.

What are the spicules on spongy bone called?

- a. Canaliculi
- b. Sharpey's fibers
- c. Trabeculae
- d. Tome's process
- e. Lacuna

6.

Which cell type is responsible for bone breakdown?

- a. Chondrocyte
- b. Chondroblast
- c. Osteocyte
- d. Osteoclast
- e. Bone lining cell

7.

What is bone formation called when the bone is formed directly, without using a cartilage template?

- a. Intraosseous
- b. En bloc
- c. Intramembranous
- d. Endochondral
- e. Endosteum

8.

What forms the epiphyseal growth plate?

- a. Elastic cartilage
- b. Fibrocartilage
- c. Hyaline cartilage
- d. Compact bone
- e. Spongy bone

9.

Which type of bone has spicules?

- a. Immature bone
- b. Dense bone
- c. Compact bone
- d. Cancellous bone
- e. Woven bone

10.

What sits in a lacuna?

- a. Osteoclast
- b. Osteon
- c. Osteocyte
- d. Osteoblast
- e. Osteoid

1.

What is dense bone?

- a. Immature bone
- b. Cancellous bone
- c. Compact bone
- d. Woven bone
- e. Spongy bone

2.

Which cell is a resting osteoblast?

- a. Chondrocyte
- b. Chondroblast
- c. Osteocyte
- d. Osteoclast
- e. Bone lining cell

3.

What are the mineral crystals in bone called?

- a. Hydroxyapatite
- b. Calcite
- c. Tourmaline
- d. Rubellite
- e. Indicolite

4.

What is the cylindrical structure in compact bone?

- a. Osteoclast
- b. Osteon
- c. Osteocyte
- d. Osteoblast
- e. Osteoid

5.

What are Sharpey's fibers?

- a. Elastic fibers
- b. Collagen fibers
- c. Reticular fibers
- d. Trabeculae
- e. Dense regular connective tissue

6.

What is the space that an osteocyte rests in?

- a. Canaliculi

- b. Sharpey's fibers
- c. Trabeculae
- d. Tome's process
- e. Lacuna

7.

What is bone formation called when the bone is formed from a cartilage template?

- a. Intraosseous
- b. En bloc
- c. Intramembranous
- d. Endochondral
- e. Endosteum

8.

What is the primary component of red marrow?

- a. Hematopoietic tissue
- b. Fat
- c. Cartilage
- d. Fibrous tissue
- e. Bone

9.

What cell is an immature bone cell?

- a. Osteoclast
- b. Osteon
- c. Osteocyte
- d. Osteoblast
- e. Osteoid

10.

What is bundle bone?

- a. Cancellous bone
- b. Compact bone
- c. Dense bone
- d. Spongy bone
- e. Immature bone

1.

What is cancellous bone?

- a. Dense bone
- b. Woven bone
- c. Immature bone
- d. Compact bone
- e. Spongy bone

2.

What cell is involved in laying down new bone?

- a. Osteoclast
- b. Osteon
- c. Osteocyte

- d. Osteoblast
- e. Osteoid

3.

What is in the bone matrix?

- a. Elastic fibers
- b. Collagen fibers
- c. Reticular fibers
- d. Dense irregular connective tissue
- e. Dense regular connective tissue

4.

What are the small tunnels seen in bone?

- a. Canaliculi
- b. Sharpey's fibers
- c. Trabeculae
- d. Tome's process
- e. Lacuna

5.

What is the hollow area underneath an osteoclast called?

- a. Space of Disse
- b. Space of Mall
- c. Vacuole
- d. Lacuna
- e. Howship's lacuna

6.

What is the covering of a bone?

- a. Perimysium
- b. Periosteum
- c. Perichondrium
- d. Perineurium
- e. Endosteum

7.

What forms the articular surface on bones?

- a. Spongy bone
- b. Compact bone
- c. Hyaline cartilage
- d. Elastic cartilage
- e. Fibrocartilage

8.

What is the primary component of yellow marrow?

- a. Hematopoietic tissue
- b. Fat
- c. Cartilage
- d. Fibrous tissue
- e. Bone

9.

What is another term for the Haversian system?

- a. Osteoclast
- b. Osteon
- c. Osteocyte
- d. Osteoblast
- e. Osteoid

10.

What is nonlamellar bone?

- a. Woven bone
- b. Dense bone
- c. Cancellous bone
- d. Compact bone
- e. Spongy bone

1.

What is the mature bone cell called?

- a. Osteoclast
- b. Osteon
- c. Osteocyte
- d. Osteoblast
- e. Osteoid

2.

What is immature bone?

- a. Dense bone
- b. Woven bone
- c. Cancellous bone
- d. Compact bone
- e. Spongy bone

3.

What is unmineralized bone matrix?

- a. Osteoclast
- b. Osteon
- c. Osteocyte
- d. Osteoblast
- e. Osteoid

4.

What are the collagen fibers that extend into bone at an angle called?

- a. Canaliculi
- b. Sharpey's fibers
- c. Trabeculae
- d. Tome's process
- e. Lacuna

5.

Which cell is the mature bone cell?

- a. Chondrocyte

- b. Chondroblast
- c. Osteocyte
- d. Osteoclast
- e. Bone lining cell

6.

What is the lining of the inner bone on the side which abuts the medullary cavity?

- a. Perimysium
- b. Periosteum
- c. Perichondrium
- d. Perineurium
- e. Endosteum

7.

What forms the skeleton of the fetus?

- a. Elastic cartilage
- b. Hyaline cartilage
- c. Fibrocartilage
- d. Spongy bone
- e. Compact bone

8.

Which of the following is a multinucleated cell?

- a. Osteoclast
- b. Osteon
- c. Osteocyte
- d. Osteoblast
- e. Osteoid

9.

What is spongy bone

- a. Immature bone
- b. Compact bone
- c. Cancellous bone
- d. Dense bone
- e. Woven bone

## **Blood**

1.

Which of the four basic tissue types does blood belong to?

- a. Epithelium
- b. Connective tissue
- c. Muscle
- d. Nervous tissue
- e. Blood

2.

Which of the following formed elements do not contain a nucleus?

- a. Platelets
- b. Erythrocytes

- c. Leukocytes
- d. Monocytes
- e. Both a and b

3.

What comes from a megakaryocyte?

- a. Lymphocytes
- b. Basophils
- c. Erythrocytes
- d. Monocytes
- e. Platelets

4.

Which leukocyte is the most abundant in a peripheral smear of blood?

- a. Lymphocytes
- b. Basophils
- c. Neutrophil
- d. Monocytes
- e. Eosinophils

5.

Which of the following is not a granulocyte?

- a. Lymphocytes
- b. Neutrophil
- c. PMN
- d. Eosinophils
- e. Basophils

6.

Which of the following is a granulocyte?

- a. Thrombocyte
- b. Lymphocyte
- c. Eosinophil
- d. Monocyte
- e. Erythrocyte

7.

Which of the following is NOT a term used for a neutrophil?

- a. Polymorphonuclear neutrophils
- b. Poly's
- c. PMN
- d. NP
- e. Polymorph

8.

Which leukocyte has a multi-lobed (3-5 lobes) nucleus?

- a. Neutrophil
- b. Lymphocytes
- c. Monocytes
- d. Eosinophil
- e. Basophils

9.

Which cell has large blue granules, often obscuring the nucleus?

- a. Neutrophil
- b. Lymphocytes
- c. Monocytes
- d. Eosinophil
- e. Basophils

10.

Which of the following is not considered a "formed element"?

- a. Plasma
- b. Erythrocytes
- c. Platelets
- d. Leukocytes
- e. Red blood cells

1.

Approximately what percentage of the volume of blood do the formed elements comprise?

- a. 5
- b. 25
- c. 45
- d. 75
- e. 90

2.

Which of the following is the most abundant in a peripheral smear of blood?

- a. Neutrophils
- b. Basophils
- c. Erythrocytes
- d. Leukocytes
- e. Platelets

3.

Which leukocyte is the least abundant in a peripheral smear of blood?

- a. Lymphocytes
- b. Basophils
- c. Neutrophil
- d. Monocytes
- e. Eosinophils

4.

Which of the following is not a granulocyte?

- a. PMN
- b. Basophils
- c. Neutrophil
- d. Monocytes
- e. Eosinophils

5.

Which of the following is a granulocyte?

- a. Thrombocyte
- b. Monocyte
- c. Lymphocyte
- d. Basophil
- e. Erythrocyte

6.

Which of the following is described as having a "central pallor"?

- a. Leukocytes
- b. Monocytes
- c. Eosinophils
- d. Platelets
- e. Erythrocytes

7.

Which is the smallest leukocyte?

- a. Neutrophil
- b. Lymphocytes
- c. Monocytes
- d. Eosinophil
- e. Basophils

8.

Which leukocyte usually has a bi-lobed nucleus?

- a. Neutrophil
- b. Lymphocytes
- c. Monocytes
- d. Eosinophil
- e. Basophils

9.

What is the buffy coat?

- a. Leukocytes
- b. Platelets
- c. Erythrocytes
- d. Plasma
- e. Both a and b

10.

What is another term for a platelet?

- a. Thrombocyte
- b. Monocyte
- c. Lymphocyte
- d. Basophil
- e. Erythrocyte

1.

Which leukocyte is the second most abundant in a peripheral smear of blood?

- a. Lymphocytes
- b. Basophils
- c. Neutrophil

- d. Monocytes
- e. Eosinophils

2.

Which of the following is a granulocyte?

- a. Lymphocyte
- b. Neutrophil
- c. Monocyte
- d. Erythrocyte
- e. Thrombocyte

3.

Which leukocyte has orange-pink granules?

- a. Neutrophil
- b. Lymphocytes
- c. Monocytes
- d. Eosinophil
- e. Basophils

4.

What is another term for a red blood cell?

- a. Thrombocyte
- b. Monocyte
- c. Lymphocyte
- d. Basophil
- e. Erythrocyte

5.

Which of the following is described as a "biconcave disc"?

- a. Platelets
- b. Erythrocytes
- c. Leukocytes
- d. Monocytes
- e. Eosinophils

6.

Which is the largest leukocyte?

- a. Neutrophil
- b. Lymphocytes
- c. Monocytes
- d. Eosinophil
- e. Basophils

## **Muscles**

1.

What is the connective tissue covering of a muscle fascicle?

- a. Sarcolemma
- b. Endomysium

- c. Epimysium
- d. Sarcoplasm
- e. Perimysium

2.

What is actin?

- a. Myofilament
- b. Myosin
- c. Muscle fibers
- d. Myofibrils
- e. Myocardium

3.

Which of the following is composed of smooth muscle?

- a. Upper esophagus
- b. Heart
- c. Tongue
- d. Biceps muscle
- e. Walls of the visceral organs

4.

What is a receptor in muscle?

- a. Motor unit
- b. Motor neuron
- c. Motor end plate
- d. Neuromuscular spindle
- e. Neurotransmitter

5.

Which fiber type is larger in diameter?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

6.

Which fiber type is make up fast-twitch muscle?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

7.

Which fiber type has more myoglobin?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

8.  
Which fiber type gets its energy primarily from glycogen?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

9.  
Which fiber type is seen in skeletal muscle?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

10.  
What is line that bisects the dark band in muscle?

- a. A band
- b. I band
- c. Z line
- d. H band
- e. M line

1.  
What is the outer connective tissue covering of a muscle?

- a. Epimysium
- b. Sarcoplasm
- c. Perimysium
- d. Sarcolemma
- e. Endomysium

2.  
What is myosin?

- a. Muscle fibers
- b. Myofibrils
- c. Myocardium
- d. Myofilament
- e. Muscle cell

3.  
Where is cardiac muscle found?

- a. Myofilaments
- b. Myosin
- c. Muscle fibers
- d. Myofibrils
- e. Myocardium

4.  
What type of muscle has visible cross striations?

- a. Skeletal muscle

- b. Cardiac muscle
- c. Smooth muscle
- d. Both "a" and "b"
- e. "a" "b" and "c"

5.

What type of muscle is specialized for contraction?

- a. Skeletal muscle
- b. Cardiac muscle
- c. Smooth muscle
- d. Both "a" and "b"
- e. "a" "b" and "c"

6.

What is released at a synapse?

- a. Motor unit
- b. Motor neuron
- c. Motor end plate
- d. Neuromuscular spindle
- e. Neurotransmitter

7.

Which fiber type is more resistant to fatigue?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

8.

Lance Armstrong is the seven time winner of the Tour de France. The Tour de France is a bicycle race which covers between 3500 to 4000 kilometers. What type of muscle fiber probably predominates in his legs?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

9.

What region is made of thin filaments?

- a. A band
- b. I band
- c. Z line
- d. H band
- e. M line

10.

On a cross section of a muscle, how many thin filaments surround each thick filament?

- a. 2
- b. 3

- c. 4
- d. 6
- e. 8

1.

What is the plasma membrane of a muscle cell called?

- a. Endomysium
- b. Sarcolemma
- c. Sarcoplasm
- d. Perimysium
- e. Epimysium

2. What are the thin filaments?

- a. Myocardium
- b. Myofibrils
- c. Myofilaments
- d. Muscle fibers
- e. Myosin

3.

Which of the following is composed of skeletal muscle?

- a. Tongue
- b. Blood vessel
- c. Walls of the visceral organs
- d. Lower esophagus
- e. Heart

4.

What type of muscle is composed of spindle shaped cells?

- a. Skeletal muscle
- b. Cardiac muscle
- c. Smooth muscle
- d. Both "a" and "b"
- e. "a" "b" and "c"

5.

What type of muscle is always multinucleated?

- a. Skeletal muscle
- b. Cardiac muscle
- c. Smooth muscle
- d. Both "a" and "b"
- e. "a" "b" and "c"

6.

Which fiber type is smaller in diameter?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

7.

Which fiber type fatigues more readily?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

8.

What type of muscle probably predominates in Charles Atlas, the worlds most famous power weight lifter?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

9.

What is line that bisects the light band in muscle?

- a. A band
- b. I band
- c. Z line
- d. H band
- e. M line

10.

What is the name of the tissue which surrounds muscle fascicles?

- a. Perimysium
- b. Periosteum
- c. Perichondrium
- d. Perineurium
- e. Endosteum

1.

What is the covering of an individual muscle fiber?

- a. Sarcoplasm
- b. Perimysium
- c. Endomysium
- d. Epimysium
- e. Sarcolemma

2.

What are the thick filaments composed of?

- a. Myofilaments
- b. Myosin
- c. Muscle fibers
- d. Myofibrils
- e. Myocardium

3.

Which of the following is composed of cardiac muscle?

- a. Biceps muscle
- b. Tongue
- c. Heart
- d. Upper esophagus
- e. Walls of the visceral organs

4.  
What type of muscle contains centrally placed nuclei?
- a. Smooth muscle
  - b. Cardiac muscle
  - c. Skeletal muscle
  - d. Both "a" and "b"
  - e. "a" "b" and "c"

5.  
What is the point that a neuron contacts a muscle called?
- a. Motor unit
  - b. Motor neuron
  - c. Motor end plate
  - d. Neuromuscular spindle
  - e. Neurotransmitter

6.  
Which fiber type makes up slow-twitch muscle?
- a. Red fibers
  - b. White fibers
  - c. Intermediate fibers
  - d. All of the above
  - e. None of the above

7.  
Which fiber type uses more anaerobic metabolism?
- a. Red fibers
  - b. White fibers
  - c. Intermediate fibers
  - d. All of the above
  - e. None of the above

8.  
What is the dark band in muscle?
- a. A band
  - b. I band
  - c. Z line
  - d. H band
  - e. M line

9.  
What bisects the H band
- a. A band
  - b. I band
  - c. Z line

- d. E band
- e. M line

10.

What type of muscle has intercalated discs?

- a. Skeletal muscle
- b. Cardiac muscle
- c. Smooth muscle
- d. Both "a" and "b"
- e. "a" "b" and "c"

1.

What is the cytoplasm of a muscle cell?

- a. Epimysium
- b. Sarcolemma
- c. Endomysium
- d. Sarcoplasm
- e. Perimysium

2.

What is another term for muscle cells?

- a. Myofilaments
- b. Myosin
- c. Muscle fibers
- d. Myofibrils
- e. Myocardium

3.

Which of the following contains a substantial amount of smooth muscle?

- a. Upper esophagus
- b. Blood vessels
- c. Heart
- d. Biceps muscle
- e. Tongue

4.

What type of muscle contains actin and myosin?

- a. Skeletal muscle
- b. Cardiac muscle
- c. Smooth muscle
- d. Both "a" and "b"
- e. "a" "b" and "c"

5.

What is a single neuron and the aggregation of muscle fibers innervated by that single neuron called?

- a. Motor unit
- b. Motor neuron
- c. Motor end plate
- d. Neuromuscular spindle
- e. Neurotransmitter

6.

Which fiber type has a lot of mitochondria?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

7.

Which fiber type uses more aerobic metabolism?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

8.

What is the light band in muscle?

- a. A band
- b. I band
- c. Z line
- d. H band
- e. M line

9.

What type of muscle contains sarcomeres?

- a. Skeletal muscle
- b. Cardiac muscle
- c. Smooth muscle
- d. Both "a" and "b"
- e. "a" "b" and "c"

10.

What type of muscle has branching cells?

- a. Skeletal muscle
- b. Cardiac muscle
- c. Smooth muscle
- d. Both "a" and "b"
- e. "a" "b" and "c"

1.

Which fiber type is seen in smooth muscle?

- a. Red fibers
- b. White fibers
- c. Intermediate fibers
- d. All of the above
- e. None of the above

2.

A sarcomere is defined as the segment from \_\_\_\_\_ to \_\_\_\_\_?

- a. A band

- b. I band
- c. Z line
- d. H band
- e. M line

3.

What are the bundle of longitudinal contractile elements within a muscle cell called?

- a. Myofilaments
- b. Myosin
- c. Muscle fibers
- d. Myofibrils
- e. Myocardium

## **Integument**

1.

Which of the following is composed of loose connective tissue?

- a. Epidermis
- b. Reticular layer of dermis
- c. Hypodermis
- d. Both a and b
- e. Both b and c

2.

Where is thick skin found?

- a. Over the knee
- b. Sole of the feet
- c. Breast
- d. Lips
- e. All of the above

3.

Which layer of the epidermis has cells which have keratohyaline granules?

- a. Stratum basale
- b. Stratum spinosum
- c. Stratum granulosum
- d. Stratum lucidum
- e. Stratum corneum

4.

Which cell is a macrophage found in the skin?

- a. Kupffer cells
- b. Histiocyte
- c. Dust cell
- d. Langerhans cell
- e. Microglia

5.

A new miracle skin cream recently hit the beauty counters which is suppose to stimulate collagen production. Which cell is it supposedly stimulating?

- a. Langerhans cell

- b. Keratinocyte
- c. Melanocyte
- d. Merkel cell
- e. Fibroblast

6.  
What is the half moon shaped white area on a nail called?

- a. Lunula
- b. Eponychium
- c. Matrix
- d. Nail bed
- e. Root

7.  
What is the growing part of the nail?

- a. Lunula
- b. Eponychium
- c. Matrix
- d. Nail bed
- e. Root

8.  
What type of glands are the ceruminous glands?

- a. Sebaceous glands
- b. Eccrine sweat gland
- c. Endocrine gland
- d. Apocrine sweat gland
- e. Oil gland

9.  
Which of the following is the most abundant sensory receptor of the skin?

- a. Free nerve endings
- b. Ruffini's corpuscles
- c. Pacinian corpuscles
- d. Krause's end bulbs
- e. Meissner's corpuscle

10.  
Where can hair be found?

- a. Palms of hand
- b. Soles of feet
- c. Urogenital openings
- d. Lips
- e. Eyelid

1.  
Which of the following is composed of connective tissue?

- a. Epidermis
- b. Dermis
- c. Hypodermis

- d. Both a and b
- e. Both b and c

2.

Which of the following is composed of dense irregular connective tissue?

- a. Epidermis
- b. Reticular layer of dermis
- c. Hypodermis
- d. Both a and b
- e. Both b and c

3.

Where is thick skin found?

- a. Lips
- b. Over the knee
- c. Palms
- d. Breast
- e. All of the above

4.

Which layer of the epidermis is present only in thick skin?

- a. Stratum basale
- b. Stratum spinosum
- c. Stratum granulosum
- d. Stratum lucidum
- e. Stratum corneum

5.

Which cell is a mechanoreceptors?

- a. Langerhans cell
- b. Keratinocyte
- c. Melanocyte
- d. Merkel cell
- e. Fibroblast

6.

Which cell is found in the dermis?

- a. Langerhans cell
- b. Keratinocyte
- c. Melanocyte
- d. Merkel cell
- e. Fibroblast

7.

What is underneath the nail plate?

- a. Lunula
- b. Eponychium
- c. Matrix
- d. Nail bed
- e. Root

8.

What is the innervation of an eccrine sweat gland?

- a. Cholinergic; parasympathetic
- b. Cholinergic; sympathetic
- c. Adrenergic; parasympathetic
- d. Adrenergic; sympathetic
- e. Cholinergic; motor

9.

Which of the following responds to continuous pressure?

- a. Free nerve endings
- b. Ruffini's corpuscles
- c. Pacinian corpuscles
- d. Krause's end bulbs
- e. Meissner's corpuscle

10.

Which of the following is found in the hair follicle?

- a. Pigment epithelium
- b. Muller's cells
- c. Huxley's layer
- d. Horizontal cells
- e. Cones

1.

The reticular layer is part of which layer?

- a. Epidermis
- b. Dermis
- c. Hypodermis
- d. Both a and b
- e. None of the above

2.

Which of the following is NOT considered an epidermal appendage?

- a. Sweat gland
- b. Hair
- c. Hypodermis
- d. Nails
- e. Sebaceous glands

3.

Which layer of the epidermis is also called the stratum germinativum?

- a. Stratum basale
- b. Stratum spinosum
- c. Stratum granulosum
- d. Stratum lucidum
- e. Stratum corneum

4.

Which layer of the epidermis is on the surface of the skin?

- a. Stratum basale

- b. Stratum spinosum
- c. Stratum granulosum
- d. Stratum lucidum
- e. Stratum corneum

5.

Which cell is the most abundant cell in the epidermis?

- a. Langerhans cell
- b. Keratinocyte
- c. Melanocyte
- d. Merkel cell
- e. Fibroblast

6.

What type of epithelium forms the epidermis?

- a. Simple squamous epithelium
- b. Simple cuboidal epithelium
- c. Simple columnar epithelium
- d. Stratified squamous epithelium
- e. Pseudostratified epithelium

7.

What is the portion of the nail which is underneath skin?

- a. Lunula
- b. Eponychium
- c. Matrix
- d. Nail bed
- e. Root

8.

What type of glands are the glands of Moll?

- a. Endocrine gland
- b. Apocrine sweat gland
- c. Oil gland
- d. Sebaceous glands
- e. Eccrine sweat gland

9.

Which of the following responds to vibration and rapidly changing pressure?

- a. Free nerve endings
- b. Ruffini's corpuscles
- c. Pacinian corpuscles
- d. Krause's end bulbs
- e. Meissner's corpuscle

10.

Which of the following is a receptor for fine touch which is located in mucous membranes?

- a. Free nerve endings
- b. Ruffini's corpuscles
- c. Pacinian corpuscles

- d. Krause's end bulbs
- e. Meissner's corpuscle

1.

Which of the following is composed of stratified squamous epithelium?

- a. Epidermis
- b. Dermis
- c. Hypodermis
- d. Both a and b
- e. Both b and c

2.

Which of the following is NOT a function of skin

- a. Vitamin D production
- b. Protection from water loss
- c. Sensory reception
- d. Heat regulation
- e. All are functions of skin

3.

Which layer of the epidermis contains dividing cells?

- a. Stratum basale
- b. Stratum spinosum
- c. Stratum granulosum
- d. Stratum lucidum
- e. Stratum corneum

4.

Which layer of the epidermis contains cells with no nuclei or organelles?

- a. Stratum basale
- b. Stratum spinosum
- c. Stratum granulosum
- d. Stratum lucidum
- e. Stratum corneum

5.

Which cell is a phagocyte?

- a. Langerhans cell
- b. Keratinocyte
- c. Melanocyte
- d. Merkel cell
- e. Fibroblast

6.

What is a characteristic of the cells in the epidermis of the skin?

- a. Microvilli
- b. Stereocilia
- c. Cilia
- d. Keratinization
- e. Both a and b

7.

Where are apocrine sweat glands NOT found?

- a. Areola
- b. External genitalia
- c. Posterior neck
- d. Axilla
- e. Circumanal region

8.

What is the innervation of an apocrine sweat gland?

- a. Cholinergic; parasympathetic
- b. Cholinergic; sympathetic
- c. Adrenergic; parasympathetic
- d. Adrenergic; sympathetic
- e. Cholinergic; motor

9.

Which of the following is a receptor for fine touch which is located in the dermis?

- a. Free nerve endings
- b. Ruffini's corpuscles
- c. Pacinian corpuscles
- d. Krause's end bulbs
- e. Meissner's corpuscle

10.

Which of the following is found in the hair follicle?

- a. Henle's layer
- b. Bipolar cells
- c. Amacrine cells
- d. Rods
- e. Ganglion cells

1.

The papillary layer is part of which layer?

- a. Epidermis
- b. Dermis
- c. Hypodermis
- d. Both a and b
- e. None of the above

2.

Which layer of the epidermis contains star shaped cells?

- a. Stratum basale
- b. Stratum spinosum
- c. Stratum granulosum
- d. Stratum lucidum
- e. Stratum corneum

3.

Which of the following layers comprise the skin?

- a. Epidermis

- b. Dermis
- c. Hypodermis
- d. Both a and b
- e. Both b and c

4.

Which cell is responsible for skin pigmentation?

- a. Langerhans cell
- b. Keratinocyte
- c. Melanocyte
- d. Merkel cell
- e. Fibroblast

5.

Which of the following responds to pain?

- a. Free nerve endings
- b. Ruffini's corpuscles
- c. Pacinian corpuscles
- d. Krause's end bulbs
- e. Meissner's corpuscle

6.

What is the correct term for cuticle?

- a. Lunula
- b. Eponychium
- c. Matrix
- d. Nail bed
- e. Root

7.

What color is keratin with Masson's trichrome stain?

- a. Red
- b. Pink
- c. Green
- d. Black
- e. Yellow

8.

What type of tissue makes up the dermis of the skin?

- a. Mucous connective tissue
- b. Mesenchyme
- c. Loose irregular connective tissue
- d. Dense irregular connective tissue
- e. Dense regular connective tissue

9.

What are the pressure receptors in skin called?

- a. Psammoma bodies
- b. Corpora arenacea
- c. Hassall's corpuscles

- d. Prostatic concretions
- e. Pacinian corpuscles

10.

Which sensory receptor in the skin is NOT encapsulated?

- a. Ruffini endings
- b. Free nerve endings
- c. Pacinian corpuscles
- d. Meissner's corpuscles
- e. Merkel cells

## **Special senses**

1.

What is Bruch's membrane?

- a. Ciliary body
- b. Optic disc
- c. Fovea centralis
- d. Lamina vitrea
- e. Lamina cribrosa

2.

What are neurons in the retina?

- a. Unipolar
- b. Pseudounipolar
- c. Bipolar
- d. Multipolar
- e. Both a and b

3.

Which structure is transparent?

- a. Choroid
- b. Ciliary body
- c. Iris
- d. Ora serrata
- e. Cornea

4.

Which of the following is the receptor for color?

- a. Rods
- b. Cones
- c. Bipolar cells
- d. Ganglion cells
- e. Horizontal cells

5.

What is responsible for adjusting the lens?

- a. Choroid
- b. Ciliary muscle
- c. Iris

- d. Ora serrata
- e. Sclera

6.

What is the region called where the optic nerve exits the eye?

- a. Os
- b. Optic chiasm
- c. Lamina cribrosa
- d. Optic disc
- e. Ora serrata

7.

Which of the following is a type of neuron?

- a. Rods
- b. Ganglion cells
- c. Cones
- d. Pigmented epithelium
- e. Supporting cells

8.

What is the space anterior to the iris?

- a. Anterior chamber
- b. Posterior chamber
- c. Vitreal cavity
- d. Both a and b
- e. All of a, b, and c

9.

Which layer forms the majority of the cornea?

- a. Epithelium
- b. Endothelium
- c. Descemet's membrane
- d. Substantia propria
- e. Bowman's membrane

10.

What is the region where the optic nerve leaves the eyeball?

- a. Ciliary body
- b. Optic disc
- c. Fovea centralis
- d. Lamina vitrea
- e. Lamina cribrosa

1.

What are the receptors for vision?

- a. Rods
- b. Cones
- c. Bipolar cells
- d. Ganglion cells
- e. Both a and b

2.

Where is the ciliary muscle located?

- a. Ciliary body
- b. Optic disc
- c. Fovea centralis
- d. Lamina vitrea
- e. Lamina cribrosa

3.

Where is the ciliary muscle located?

- a. Choroid
- b. Ciliary body
- c. Iris
- d. Ora serrata
- e. Sclera

4.

What are the openings within the sclera which allow nerve fibers to exit?

- a. Os
- b. Optic chiasm
- c. Lamina cribrosa
- d. Optic disc
- e. Ora serrata

5.

Which of the following is NOT part of the retina?

- a. Receptor cells
- b. Neurons
- c. Pigmented epithelium
- d. Ciliary body
- e. Supporting cells

6.

What structure adjusts the shape of the lens?

- a. Internal oblique muscle
- b. Orbicularis oculi
- c. Tarsus
- d. Ciliary muscle
- e. Levator muscle

7.

What is the inner layer of the choroid?

- a. Ciliary body
- b. Optic disc
- c. Fovea centralis
- d. Lamina vitrea
- e. Lamina cribrosa

8.

Where does aqueous humor from anterior chamber collect into?

- a. Canaliculi

- b. Canal of Hering
- c. Canal of Muller
- d. Canal of Descemet
- e. Canal of Schlemm

9.

Which layer of the cornea is acellular?

- a. Epithelium
- b. Endothelium
- c. Descemet's membrane
- d. Substantia propria
- e. None of the above

10.

Which structure is avascular?

- a. Retina
- b. Cornea
- c. Choroid
- d. Sclera
- e. Uvea

1.

During the American Revolution, in the battle of Bunker Hill, an officer instructed his troops: "Don't fire until you see the whites of their eyes". What anatomical structure was he referring to?

- a. Choroid
- b. Ciliary body
- c. Iris
- d. Ora serrata
- e. Sclera

2.

Where is the region associated with maximum visual acuity?

- a. Ciliary body
- b. Optic disc
- c. Fovea centralis
- d. Lamina vitrea
- e. Lamina cribrosa

3.

What is the suspensory ligament of the lens?

- a. Zonular fibers
- b. Purkinje fibers
- c. Elastic fibers
- d. Spiral ligament
- e. Oval ligament

4.

Which layer of the cornea is acellular?

- a. Bowman's membrane
- b. Substantia propria
- c. Epithelium

- d. Endothelium
- e. All of the above

5.  
How many layers of tissue compose the eyeball?

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

6.  
What type of glands are the glands of Moll?

- a. Endocrine gland
- b. Apocrine sweat gland
- c. Oil gland
- d. Sebaceous glands
- e. Eccrine sweat gland

7.  
Which structure is part the uvea?

- a. Ora serrata
- b. Pigmented epithelium
- c. Cornea
- d. Sclera
- e. Ciliary body

8.  
What is the space anterior to the lens?

- a. Anterior chamber
- b. Posterior chamber
- c. Vitreal cavity
- d. Both a and b
- e. All of a, b, and c

9.  
What is the vascular pigmented structure?

- a. Choroid
- b. Ciliary body
- c. Iris
- d. Ora serrata
- e. Lens

10.  
What type of epithelium is on the surface of the cornea?

- a. Simple squamous
- b. Stratified squamous
- c. Simple cuboidal
- d. Simple columnar
- e. Transitional epithelium

1.

What structure was Crystal Gayle referring to when she sang, "Don't it make my brown eyes blue"?

- a. Pupil
- b. Lens
- c. Cornea
- d. Iris
- e. Retina

2.

What makes up the bulk of the cornea?

- a. Purkinje fibers
- b. Myofibrils
- c. Elastic fibers
- d. Reticular fibers
- e. Collagen fibers

3.

What is the middle layer of the eyeball?

- a. Uvea
- b. Rods
- c. Cones
- d. Bipolar cells
- e. Ganglion cells

4.

What is the anterior pigmented portion of the retina called?

- a. Choroid
- b. Ciliary body
- c. Iris
- d. Ora serrata
- e. Sclera

5.

Which one of the following is not found in the retina?

- a. Henle's layer
- b. Bipolar cells
- c. Amacrine cells
- d. Rods
- e. Ganglion cells

6.

Which structure is part the uvea?

- a. Ora serrata
- b. Pigmented epithelium
- c. Choroid
- d. Cornea
- e. Sclera

7.

What is the space posterior to the lens?

- a. Anterior chamber
- b. Posterior chamber
- c. Vitreal cavity
- d. Both a and b
- e. All of a, b, and c

8.

Where is the blind spot?

- a. Ciliary body
- b. Optic disc
- c. Fovea centralis
- d. Lamina vitrea
- e. Lamina cribrosa

9.

How many layers does the retina have?

- a. 1
- b. 2
- c. 4
- d. 5
- e. 10

10.

Which of the following is NOT a layer of the cornea?

- a. Bowman's membrane
- b. Substantia propria
- c. Descemet's membrane
- d. Lamina vitrea
- e. Endothelium

1.

Where on the retina are there no photoreceptors?

- a. Ciliary body
- b. Optic disc
- c. Fovea centralis
- d. Lamina vitrea
- e. Lamina cribrosa

2.

What makes up the bulk of the sclera?

- a. Purkinje fibers
- b. Myofibrils
- c. Elastic fibers
- d. Reticular fibers
- e. Collagen fibers

3.

Which is NOT part of the retina?

- a. Rods
- b. Cones
- c. Bipolar cells

- d. Ganglion cells
- e. Uvea

4.

What is the most anterior portion of the uvea?

- a. Choroid
- b. Ciliary body
- c. Iris
- d. Ora serrata
- e. Sclera

5.

Which one of the following is not found in the retina?

- a. Pigment epithelium
- b. Muller's cells
- c. Huxley's layer
- d. Horizontal cells
- e. Cones

6.

Which structure is part the uvea?

- a. Sclera
- b. Iris
- c. Ora serrata
- d. Pigmented epithelium
- e. Cornea

7.

What is the space posterior to the iris?

- a. Anterior chamber
- b. Posterior chamber
- c. Vitreal cavity
- d. Both a and b
- e. All of a, b, and c

1.

What is within the membranous labyrinth?

- a. Lymph
- b. Blood
- c. Endolymph
- d. Perilymph
- e. Air

2.

What is within the bony labyrinth?

- a. Lymph
- b. Blood
- c. Endolymph
- d. Perilymph
- e. Air

3.

Which contains endolymph?

- a. Scala vestibuli
- b. Scala tympani
- c. Cochlear duct
- d. Both a and b
- e. All a, b, and c

4.

Which contains perilymph?

- a. Scala vestibuli
- b. Scala tympani
- c. Cochlear duct
- d. Both a and b
- e. All a, b, and c

5.

Where are the sensory receptors for hearing?

- a. Sacculle
- b. Utricle
- c. Organ of Corti
- d. Semicircular canals
- e. Both a and b

6.

Where are the sensory receptors for movement?

- a. Sacculle
- b. Utricle
- c. Organ of Corti
- d. Semicircular canals
- e. Both a and b

7.

Where are the sensory receptors for position?

- a. Sacculle
- b. Utricle
- c. Organ of Corti
- d. Semicircular canals
- e. Both a and b

8.

What structure is shaped like a snail shell?

- a. Sacculle
- b. Utricle
- c. Organ of Corti
- d. Semicircular canals
- e. Cochlea

Answer: e

9.

Where is the organ of Corti?

- a. Sacculc
- b. Utriclc
- c. Crista ampullaris
- d. Semicircular canals
- e. Cochlea

10.

What sensation does the crista ampullaris recognize?

- a. Sound
- b. Position
- c. Movement
- d. Vibration
- e. All of the above

11.

Which cell type is the receptor cell within the organ of Corti?

- a. Cells of Hensen
- b. Hair cells
- c. Inner border cells
- d. Outer phalangeal cells
- e. Inner pillar cells