Histology-World

Histology Testbank: Cell 1a

.1

?Which of the following is NOT a membranous organelle

a. Lysosomes

b. Peroxisomes

c. Mitochondria

d. Ribosomes

e. Endoplasmic reticulum

Answer: d

Lysosomes, peroxisomes, mitochondria, and endoplasmic reticulum are all membranous .organelles

.2

?Which organelle contains digestive enzymes

a. Rough endoplasmic reticulum

b. Smooth endoplasmic reticulum

c. Lysosome

d. Golgi apparatus

e. Mitochondria

Answer: c

Endoplasmic reticulum is a system of tubules. If there are ribosomes on the tubules, it is termed "rough endoplasmic reticulum". Ribosomes produce proteins. When the ribosomes are attached to endoplasmic reticulum, the proteins produced by the ribosomes are exported. If there are no ribosomes on the endoplasmic reticulum, it is called "smooth endoplasmic reticulum". The role of smooth endoplasmic reticulum is .lipid metabolism

Lysosomes are membrane bound sacs of digestive enzymes. They are nicknamed .""suicide sacs

The Golgi apparatus are stacks of membranous sacs. Proteins are sorted and packaged .in the Golgi apparatus

The mitochondria is the site of ATP production for the cell. ATP is the energy currency ."of the cell. Mitochondria are nicknamed, the "powerhouse

.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

Endoplasmic reticulum is a system of tubules. If there are ribosomes on the tubules, it is termed "rough endoplasmic reticulum". Ribosomes produce proteins. When the ribosomes are attached to endoplasmic reticulum, the proteins produced by the

ribosomes are exported. If there are no ribosomes on the endoplasmic reticulum, it is called "smooth endoplasmic reticulum". The role of smooth endoplasmic reticulum is .lipid metabolism

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.4

?What structure is at the base of cilia

a. Ribosomes

b. Peroxisome

c. Microfilaments

d. Centrioles

e. Nucleoli

Answer: d

.The ribosomes are the site of protein synthesis

Peroxisomes contain enzymes for detoxification. One of the enzymes within peroxisomes .is catalase. Catalase is involved in the breakdown of hydrogen peroxide

.Microfilaments are made of actin. They form the cells cytoskeleton

Centrioles are composed of microtubules. Centrioles are at the base of cilia and flagella. .They are also involved with cell division

Ribosomes are assembled in the nucleoli. The nucleolus is a spherical area within the .cell nucleus

.5

?Which of the following is NOT considered an inclusion

a. Pigment

b. Glycogen

c. Lipid

d. Secretory granules

e. Mitochondria

Answer: e

Mitochondria is an organelle. Pigment, glycogen, lipid, and secretory granules are all considered inclusions. Organelles perform an activity; they have a job; they require .energy. Inclusions are for storage. Inclusions do not perform an energy requiring job

.6

?Collectively, what is the cytoplasm and nucleus called

a. Plasmalemma

b. Glycocalyx

c. Protoplasm

d. Cristae

e. Ground substance

Answer: c

The cell boundary is defined by the cell membrane or plasmalemma. Glycocalyx is a polysacchride that can be found on the outer surface of the cell membranes. Collectively, the cytoplasm and nucleus form the protoplasm of a cell. The folds on the inner mitochodrial membrane are called cristae. The cytoplasm that surrounds .organelles is the cytoplasmic ground substance or cytosol

.7

?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

Answer: b

.The plasma membrane is 8-10 nanometers thick

.8

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

a. Endocytosis

b. Exocytosis

c. Pinocytosis

d. Phagocytosis

e. Active transport

Answer: b

Endotyosis is the term for the process cells use to have substances enter them. Exoctyosis is the term for the process cells use to remove substances. Phagocytosis is "cell eating" and is used for the transport of particulate matter. Pinocytosis is "cell .drinking". Active transport is a method which requires energy

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

Answer: d

Endoplasmic reticulum is a system of tubules. If there are ribosomes on the tubules, it is termed "rough endoplasmic reticulum". Ribosomes produce proteins. When the ribosomes are attached to endoplasmic reticulum, the proteins produced by the ribosomes are exported. If there are no ribosomes on the endoplasmic reticulum, it is called "smooth endoplasmic reticulum". The role of smooth endoplasmic reticulum is .lipid metabolism

Lysosomes are membrane bound sacs of digestive enzymes. They are nicknamed .""suicide sacs

The Golgi apparatus are stacks of membranous sacs. Proteins are sorted and packaged .in the Golgi apparatus

The mitochondria is the site of ATP production for the cell. ATP is the energy currency ."of the cell. Mitochondria are nicknamed, the "powerhouse
.10
?Which of the following is NOT a membranous organelle
a. Lysosomes
b. Filaments
c. Peroxisomes
d. Mitochondria
e. Endoplasmic reticulum
Answer: b
Lysosomes, peroxisomes, mitochondria, and endoplasmic reticulum are all membranous .organelles

Histology Testbank: Cells 2a
.1
?What are the folds on the inner mitochodrial membrane called
a. Plasmalemma
b. Glycocalyx
c. Protoplasm
d. Cristae
e. Ground substance
Answer: d
The cell boundary is defined by the cell membrane or plasmalemma. Glycocalyx is a polysacchride that can be found on the outer surface of the cell membranes. Collectively, the cytoplasm and nucleus form the protoplasm of a cell. The folds on the inner mitochodrial membrane are called cristae. The cytoplasm that surrounds .organelles is the cytoplasmic ground substance or cytosol
.2
?Which organelle is involved in lipid metabolism
a. Rough endoplasmic reticulum
b. Smooth endoplasmic reticulum
c. Lysosome
d. Golgi apparatus
e. Mitochondria
Answer: b
Endoplasmic reticulum is a system of tubules. If there are ribosomes on the tubules, it is termed "rough endoplasmic reticulum". Ribosomes produce proteins. When the ribosomes are attached to endoplasmic reticulum, the proteins produced by the ribosomes are exported. If there are no ribosomes on the endoplasmic reticulum, it is called "smooth endoplasmic reticulum". The role of smooth endoplasmic reticulum is .lipid metabolism
Lysosomes are membrane bound sacs of digestive enzymes. They are nicknamed .""suicide sacs
The Golgi apparatus are stacks of membranous sacs. Proteins are sorted and packaged

.in the Golgi apparatus
The mitochondria is the site of ATP production for the cell. ATP is the energy currency
."of the cell. Mitochondria are nicknamed, the "powerhouse
.3
?Which organelle contains detoxifying enzymes
a. Ribosomes
b. Peroxisome
c. Microfilaments
d. Centrioles
e. Nucleoli
Answer: b
.The ribosomes are the site of protein synthesis
Peroxisomes contain enzymes for detoxification. One of the enzymes within peroxisomes
.is catalase. Catalase is involved in the breakdown of hydrogen peroxide
.Microfilaments are made of actin. They form the cells cytoskeleton
Centrioles are composed of microtubules. Centrioles are at the base of cilia and flagella.
.They are also involved with cell division
Ribosomes are assembled in the nucleoli. The nucleolus is a spherical area within the
.cell nucleus
.4
?Which of the following is NOT a membranous organelle
a. Microtubules
b. Lysosomes
c. Peroxisomes
d. Mitochondria
e. Endoplasmic reticulum
Answer: a
Lysosomes, peroxisomes, mitochondria, and endoplasmic reticulum are all membranous
.organelles
.5
?What is the limiting membrane of a cell
a. Plasmalemma
b. Glycocalyx
c. Protoplasm
d. Cristae
e. Ground substance
Answer: a
The cell boundary is defined by the cell membrane or plasmalemma. Glycocalyx is a
polysacchride that can be found on the outer surface of the cell membranes.
Collectively, the cytoplasm and nucleus form the protoplasm of a cell. The folds on the
inner mitochodrial membrane are called cristae. The cytoplasm that surrounds
.organelles is the cytoplasmic ground substance or cytosol
.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
Answer: b
.A gap junction is a low resistance junction
.7
?Which of the following is an organelle
a. Pigment
b. Glycogen
c. Lipid
d. Secretory granules
e. Mitochondria
Answer: e
Mitochondria is an organelle. Pigment, glycogen, lipid, and secretory granules are all considered inclusions. Organelles perform an activity; they have a job; they require .energy. Inclusions are for storage. Inclusions do not perform an energy requiring job
.8
?What is the term for the general process that cells us to bring things into the cell
a. Endocytosis
b. Exocytosis
c. Pinocytosis
d. Phagocytosis
e. Active transport
Answer: a
Endotyosis is the term for the process cells use to have substances enter them. Exoctyosis is the term for the process cells use to remove substances. Phagocytosis is "cell eating" and is used for the transport of particulate matter. Pinocytosis is "cell .drinking". Active transport is a method which requires energy
.9
?Which organelle produces protein for export
a. Rough endoplasmic reticulum
b. Smooth endoplasmic reticulum
c. Lysosome
d. Golgi apparatus
e. Mitochondria
Answer: a
Endoplasmic reticulum is a system of tubules. If there are ribosomes on the tubules, it is termed "rough endoplasmic reticulum". Ribosomes produce proteins. When the ribosomes are attached to endoplasmic reticulum, the proteins produced by the ribosomes are exported. If there are no ribosomes on the endoplasmic reticulum, it is called "smooth endoplasmic reticulum". The role of smooth endoplasmic reticulum is .lipid metabolism
Lysosomes are membrane bound sacs of digestive enzymes. They are nicknamed .""suicide sacs

The Golgi apparatus are stacks of membranous sacs. Proteins are sorted and packaged .in the Golgi apparatus
The mitochondria is the site of ATP production for the cell. ATP is the energy currency ."of the cell. Mitochondria are nicknamed, the "powerhouse
.10
?Where are ribosomes constructed
a. Cytoskeleton
b. Peroxisome
c. Microfilaments
d. Centrioles
e. Nucleoli
Answer: e
.The ribosomes are the site of protein synthesis
Peroxisomes contain enzymes for detoxification. One of the enzymes within peroxisomes .is catalase. Catalase is involved in the breakdown of hydrogen peroxide
.Microfilaments are made of actin. They form the cells cytoskeleton
Centrioles are composed of microtubules. Centrioles are at the base of cilia and flagella. .They are also involved with cell division
Ribosomes are assembled in the nucleoli. The nucleolus is a spherical area within the .cell nucleus

.**Histology Testbank: Cells 3**
.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
Answer: d
Endotyosis is the term for the process cells use to have substances enter them. Exoctyosis is the term for the process cells use to remove substances. Phagocytosis is "cell eating" and is used for the transport of particulate matter. Pinocytosis is "cell .drinking". Active transport is a method which requires energy
.2
?What is another term for the cytoplasm outside of organelles
a. Plasmalemma
b. Glycocalyx
c. Protoplasm
d. Cristae
e. Ground substance
Answer: e
The cell boundary is defined by the cell membrane or plasmalemma. Glycocalyx is a polysacchride that can be found on the outer surface of the cell membranes. Collectively, the cytoplasm and nucleus form the protoplasm of a cell. The folds on the

inner mitochodrial membrane are called cristae. The cytoplasm that surrounds .organelles is the cytoplasmic ground substance or cytosol

.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

Answer: c

The space of Disse is in the liver. The space of Disse is also called the perisinusoidal .space. It is the space between the liver sinusoids and the hepatocytes

The space of Mall is also in the liver. The space of Mall is located at the portal canal and is the region between the connective tissue and the liver parenchymal cells. It is the site .where lymph is formed within the liver

.A vacuole is a small clear space within an individual cell

A lacuna is a small space or depression. The space that the chondrocyte rests in is a .lacuna

Howship's lacuna is seen in bone. Howship's lacuna is a space seen underneath an .osteoclast

.4

?Which of the following is NOT a membranous organelle

a. Lysosomes

b. Peroxisomes

c. Centrioles

d. Mitochondria

e. Endoplasmic reticulum

Answer: c

Lysosomes, peroxisomes, mitochondria, and endoplasmic reticulum are all membranous .organelles

.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

Answer: b

The cell boundary is defined by the cell membrane or plasmalemma. Glycocalyx is a polysacchride that can be found on the outer surface of the cell membranes. Collectively, the cytoplasm and nucleus form the protoplasm of a cell. The folds on the inner mitochodrial membrane are called cristae. The cytoplasm that surrounds .organelles is the cytoplasmic ground substance or cytosol

.6

?"What process is nicknamed "cell drinking

a. Endocytosis
b. Exocytosis
c. Pinocytosis
d. Phagocytosis
e. Active transport
Answer: c
Endotyosis is the term for the process cells use to have substances enter them. Exoctyosis is the term for the process cells use to remove substances. Phagocytosis is "cell eating" and is used for the transport of particulate matter. Pinocytosis is "cell drinking". Active transport is a method which requires energy.
7.
?Which organelle is studded with ribosomes
a. Rough endoplasmic reticulum
b. Smooth endoplasmic reticulum
c. Lysosome
d. Golgi apparatus
e. Mitochondria
Answer: a
Endoplasmic reticulum is a system of tubules. If there are ribosomes on the tubules, it is termed "rough endoplasmic reticulum". Ribosomes produce proteins. When the ribosomes are attached to endoplasmic reticulum, the proteins produced by the ribosomes are exported. If there are no ribosomes on the endoplasmic reticulum, it is called "smooth endoplasmic reticulum". The role of smooth endoplasmic reticulum is lipid metabolism.
Lysosomes are membrane bound sacs of digestive enzymes. They are nicknamed ""suicide sacs."
The Golgi apparatus are stacks of membranous sacs. Proteins are sorted and packaged in the Golgi apparatus.
The mitochondria is the site of ATP production for the cell. ATP is the energy currency of the cell. Mitochondria are nicknamed, the "powerhouse."
8.
?Where is the site of protein synthesis
a. Ribosomes
b. Peroxisome
c. Microfilaments
d. Centrioles
e. Nucleoli
Answer: a
The ribosomes are the site of protein synthesis.
Peroxisomes contain enzymes for detoxification. One of the enzymes within peroxisomes is catalase. Catalase is involved in the breakdown of hydrogen peroxide.
Microfilaments are made of actin. They form the cells cytoskeleton.
Centrioles are composed of microtubules. Centrioles are at the base of cilia and flagella. They are also involved with cell division.

Ribosomes are assembled in the nucleoli. The nucleolus is a spherical area within the .cell nucleus

.9

?What structure contributes to the cells cytoskeleton

a. Ribosomes

b. Peroxisome

c. Microfilaments

d. Centrioles

e. Nucleoli

Answer: c

.The ribosomes are the site of protein synthesis

Peroxisomes contain enzymes for detoxification. One of the enzymes within peroxisomes .is catalase. Catalase is involved in the breakdown of hydrogen peroxide

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Ribosomes are assembled in the nucleoli. The nucleolus is a spherical area within the .cell nucleus

Histology Testbank: Epithelium 1a

.1

?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

Answer: e

The lining of the bladder is transitional epithelium. Epithelium lines body cavities and .surfaces. There are domed shaped cells on the apical surface

.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

Answer: b

The lining of most ducts is simple cuboidal epithelium. Epithelium lines body cavities and surfaces. Simple cuboidal epithelium is "simple" because it is one cell thick. ."Cuboidal" refers to the shape of the cells

.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

Answer: c

Goblet cells are associated with simple columnar epithelium of the gastrointestinal tract. Epithelium lines body cavities and surfaces. Simple columnar epithelium is "simple" because it is one cell thick. "Columnar" cells are taller than they are wide and .have an oval nucleus

.4
?What type of epithelial cells are as tall as they are wide
a. Simple
b. Stratified
c. Squamous
d. Cuboidal
e. Columnar
Answer: d
Epithelium that is classified by the number of cell layers and the cell shape. Epithelium that is one cell thick is classified as simple. Epithelium that is more than one cell layer thick is classified as stratified. If the cells are flat, the epithelium is termed squamous. If the cells are as tall as they are wide, it is cuboidal. If the cells are taller than they are .wide, the epithelium is classified as 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
Answer: c
Epithelial tissue has cells that are very tightly packed together. There is always a free surface associated with epithelial tissue. If a tissue is composed of a conglomeration of cells in tightly packed together, but it does not have a free surface, the tissue is called epithelioid tissue. An example of epithelioid tissue is the parenchyma of the adrenal .gland
Mesothelium is simple squamous epithelium that lines the abdominal cavity, the .pericardial cavity, and the thoracic cavity
.Endothelium is simple squamous epithelium that lines the vascular system
Transitional epithelium is seen in the urinary tract. Transitional epithelium has dome .shaped cells on the apical surface
Pseudostratified epithelium is a type of epithelium that has cells which all touch the basement membrane. Pseudostratified epithelium is only one cell layer thick. Pseudostratified epithelium appears stratified, but it is not really stratified. Thus the .name. The prefix "pseudo" means false, such as pseudonym or pseudo-science
.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
Answer: c
.The mucosa of the gallbladder is made of simple columnar epithelium

Note from Sarah Bellham: The simple columnar epithelium of the gallbladder is very !tall

.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 mucosa

Answer: b

Serosa lines the peritoneal cavity, pericardial cavity and pleural cavity. Mucosa lines the .alimentary canal, genitourinary tract and respiratory tract

.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

Answer: c

An endocrine gland secretes its product directly into the bloodstream, without a duct or .tube. An exocrine gland secretes its product through a duct or tube

.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

Answer: d

A simple gland has an unbranched duct. A compound gland has a branched duct. If the secretory portion of a gland is tube shaped, it is called "tubular". If the secretory portion of a gland is flask shaped, it is called "alveolar" or "acinar". If the secretory portion of a ."gland is a tube shaped but at the terminus is flask shaped, it is called "tubuloalveolar

.10

?What forms the brush border

a. Microvilli

b. Stereocilia

c. Cilia

d. Keratinization

e. Both a and b

Answer: a

Microvilli are the finger like projections seen on the surface of some cells. The .appearance of microvilli form what is also called the brush border or striated border

Stereocilia are very long microvilli. Stereocilia are seen in the epididymis and the hair .cells of the ear
Cilia is the hair like surface modification seen on some epithelia. Cilia are made of .microtubules
Keratinization is seen in the epidermis. Cells in the stratum corneum are essentially just .bags of keratin

Histology Testbank: Epithelium 2a
.1
?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
Answer: e
The trachea is lined by pseudostratified squamous epithelium. Epithelium lines body cavities and surfaces. Pseudostratified squamous epithelium is "pseudostratified" because it is only one cell layer thick, yet it appears to be stratified. In reality, every cell .touches the basement membrane
Histology hint from Sarah Bellham: The prefix "pseudo" is of Greek origin and it means .false or counterfeit. For example: pseudonym, pseudo-science or pseudostratified
.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
Answer: a
The lining of a blood vessel is simple squamous epithelium. This lining is called endothelium. Epithelium lines body cavities and surfaces. Simple squamous epithelium is "simple" because it is one cell thick. "Squamous" refers to the fact that the cells are .flat
.3
?What type of epithelium is more than one layer thick
a. Simple
b. Stratified
c. Squamous
d. Cuboidal
e. Columnar
Answer: b
Epithelium that is classified by the number of cell layers and the cell shape. Epithelium that is one cell thick is classified as simple. Epithelium that is more than one cell layer thick is classified as stratified. If the cells are flat, the epithelium is termed squamous. If

the cells are as tall as they are wide, it is cuboidal. If the cells are taller than they are .wide, the epithelium is classified as 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

Answer: a

Epithelial tissue has cells that are very tightly packed together. There is always a free surface associated with epithelial tissue. If a tissue is composed of a conglomeration of cells in tightly packed together, but it does not have a free surface, the tissue is called epithelioid tissue. An example of epithelioid tissue is the parenchyma of the adrenal .gland

Mesothelium is simple squamous epithelium that lines the abdominal cavity, the .pericardial cavity, and the thoracic cavity

.Endothelium is simple squamous epithelium that lines the vascular system

Transitional epithelium is seen in the urinary tract. Transitional epithelium has dome .shaped cells on the apical surface

Pseudostratified epithelium is a type of epithelium that has cells which all touch the basement membrane. Pseudostratified epithelium is only one cell layer thick. Pseudostratified epithelium appears stratified, but it is not really stratified. Thus the .name. The prefix "pseudo" means false, such as pseudonym or pseudo-science

.5

?What type of epithelium appears stratified, but is not

a. Epithelioid tissue

b. Mesothelium

c. Endothelium

d. Transitional

e. Pseudostratified

Answer: e

Epithelial tissue has cells that are very tightly packed together. There is always a free surface associated with epithelial tissue. If a tissue is composed of a conglomeration of cells in tightly packed together, but it does not have a free surface, the tissue is called epithelioid tissue. An example of epithelioid tissue is the parenchyma of the adrenal .gland

Mesothelium is simple squamous epithelium that lines the abdominal cavity, the .pericardial cavity, and the thoracic cavity

.Endothelium is simple squamous epithelium that lines the vascular system

Transitional epithelium is seen in the urinary tract. Transitional epithelium has dome .shaped cells on the apical surface

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.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

Answer: d

Serosa lines the peritoneal cavity, pericardial cavity and pleural cavity. Mucosa lines the .alimentary canal, genitourinary tract and respiratory tract

.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

Answer: a

An endocrine gland secretes its product directly into the bloodstream, without a duct or .tube. An exocrine gland secretes its product through a duct or tube

.8

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

a. Simple gland

b. Compound gland

c. Tubular

d. Alveolar

e. Tubuloalveolar

Answer: a

A simple gland has an unbranched duct. A compound gland has a branched duct. If the secretory portion of a gland is tube shaped, it is called "tubular". If the secretory portion of a gland is flask shaped, it is called "alveolar" or "acinar". If the secretory portion of a ."gland is a tube shaped but at the terminus is flask shaped, it is called "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

Answer: e

A simple gland has an unbranched duct. A compound gland has a branched duct. If the secretory portion of a gland is tube shaped, it is called "tubular". If the secretory portion of a gland is flask shaped, it is called "alveolar" or "acinar". If the secretory portion of a ."gland is a tube shaped but at the terminus is flask shaped, it is called "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
Answer: b
Microvilli are the finger like projections seen on the surface of some cells. The .appearance of microvilli form what is also called the brush border or striated border
Stereocilia are very long microvilli. Stereocilia are seen in the epididymis and the hair .cells of the ear
Cilia is the hair like surface modification seen on some epithelia. Cilia are made of .microtubules
Keratinization is seen in the epidermis. Cells in the stratum corneum are essentially just .bags of keratin

Histology Testbank: Epithelium 3a
.1
?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
Answer: d
The epidermis is formed by stratified squamous epithelium. Epithelium lines body cavities and surfaces. Stratified squamous epithelium is "stratified" because it is more than one cell layer thick. "Squamous" refers to the fact that the surface cells of the stratified squamous layer are flat. This is important to note as the cells at the basal layer are cuboidal or even columnar. It is still classified as "squamous" based on the .cells of the surface layer
.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
Answer: c

The lining of the gastrointestinal tract is simple columnar epithelium. Epithelium lines body cavities and surfaces. Simple columnar epithelium is "simple" because it is one cell .thick. "Columnar" cells are taller than they are wide and have an oval nucleus
.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
Answer: a
The alveoli are formed by simple squamous epithelium. Epithelium lines body cavities and surfaces. Simple squamous epithelium is "simple" because it is one cell thick. ."Squamous" refers to the fact that the cells are flat
.4
?What type of epithelium is composed of flat cells
a. Simple
b. Stratified
c. Squamous
d. Cuboidal
e. Columnar
Answer: c
Epithelium that is classified by the number of cell layers and the cell shape. Epithelium that is one cell thick is classified as simple. Epithelium that is more than one cell layer thick is classified as stratified. If the cells are flat, the epithelium is termed squamous. If the cells are as tall as they are wide, it is cuboidal. If the cells are taller than they are .wide, the epithelium is classified as 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
Answer: b
Epithelial tissue has cells that are very tightly packed together. There is always a free surface associated with epithelial tissue. If a tissue is composed of a conglomeration of cells in tightly packed together, but it does not have a free surface, the tissue is called epithelioid tissue. An example of epithelioid tissue is the parenchyma of the adrenal .gland
Mesothelium is simple squamous epithelium that lines the abdominal cavity, the .pericardial cavity, and the thoracic cavity
.Endothelium is simple squamous epithelium that lines the vascular system
Transitional epithelium is seen in the urinary tract. Transitional epithelium has dome .shaped cells on the apical surface

Pseudostratified epithelium is a type of epithelium that has cells which all touch the basement membrane. Pseudostratified epithelium is only one cell layer thick. Pseudostratified epithelium appears stratified, but it is not really stratified. Thus the .name. The prefix "pseudo" means false, such as pseudonym or pseudo-science

.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

Answer: d

Pseudostratified epithelium is a type of epithelium that has cells which all touch the basement membrane. Pseudostratified epithelium is only one cell layer thick. Pseudostratified epithelium appears stratified, but it is not really stratified. Thus the .name

The other type of epithelium where all cells touch the basement membrane and are only .one layer thick is the entire class of all of the simple epithelium

Note from Sarah Bellham: The prefix "pseudo" is derived from the Greek word and means false, counterfeit or untrue; examples of its usage include pseudonym or pseudo- .science

.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

Answer: b

Serosa lines the peritoneal cavity, pericardial cavity and pleural cavity. Mucosa lines the .alimentary canal, genitourinary tract and respiratory tract

.8

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

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

Answer: b

A simple gland has an unbranched duct. A compound gland has a branched duct. If the secretory portion of a gland is tube shaped, it is called "tubular". If the secretory portion of a gland is flask shaped, it is called "alveolar" or "acinar". If the secretory portion of a ."gland is a tube shaped but at the terminus is flask shaped, it is called "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
Answer: a
Microvilli are the finger like projections seen on the surface of some cells. The
.appearance of microvilli form what is also called the brush border or striated border
Stereocilia are very long microvilli. Stereocilia are seen in the epididymis and the hair
.cells of the ear
Cilia is the hair like surface modification seen on some epithelia. Cilia are made of
.microtubules
Keratinization is seen in the epidermis. Cells in the stratum corneum are essentially just
.bags of keratin
.10
?What cell surface modification is made of microtubules
a. Microvilli
b. Stereocilia
c. Cilia
d. Keratinization
e. Both a and b
Answer: c
Microvilli are the finger like projections seen on the surface of some cells. The
.appearance of microvilli form what is also called the brush border or striated border
Stereocilia are very long microvilli. Stereocilia are seen in the epididymis and the hair
.cells of the ear
Cilia is the hair like surface modification seen on some epithelia. Cilia are made of
.microtubules
Keratinization is seen in the epidermis. Cells in the stratum corneum are essentially just
.bags of keratin

stology Testbank: Epithelium 4a
.1
?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
Answer: b
The kidney tubules are simple cuboidal epithelium. Epithelium lines body cavities and
surfaces. Simple cuboidal epithelium is "simple" because it is one cell thick. "Cuboidal"
.refers to the shape of the cells
.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
Answer: d
The lining of the esophagus is stratified squamous epithelium. Epithelium lines body cavities and surfaces. Stratified squamous epithelium is "stratified" because it is more than one cell layer thick. "Squamous" refers to the fact that the surface cells of the layer .are flat
.3
?What type of epithelium is one cell layer thick
a. Simple
b. Stratified
c. Squamous
d. Cuboidal
e. Columnar
Answer: a
Epithelium that is classified by the number of cell layers and the cell shape. Epithelium that is one cell thick is classified as simple. Epithelium that is more than one cell layer thick is classified as stratified. If the cells are flat, the epithelium is termed squamous. If the cells are as tall as they are wide, it is cuboidal. If the cells are taller than they are .wide, the epithelium is classified as columnar
.4
?What type of epithelial cells are taller than they are wide
a. Simple
b. Stratified
c. Squamous
d. Cuboidal
e. Columnar
Answer: e
Epithelium that is classified by the number of cell layers and the cell shape. Epithelium that is one cell thick is classified as simple. Epithelium that is more than one cell layer thick is classified as stratified. If the cells are flat, the epithelium is termed squamous. If the cells are as tall as they are wide, it is cuboidal. If the cells are taller than they are .wide, the epithelium is classified as 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
Answer: d

Epithelial tissue has cells that are very tightly packed together. There is always a free surface associated with epithelial tissue. If a tissue is composed of a conglomeration of cells in tightly packed together, but it does not have a free surface, the tissue is called epithelioid tissue. An example of epithelioid tissue is the parenchyma of the adrenal .gland

Mesothelium is simple squamous epithelium that lines the abdominal cavity, the .pericardial cavity, and the thoracic cavity

.Endothelium is simple squamous epithelium that lines the vascular system

Transitional epithelium is seen in the urinary tract. Transitional epithelium has dome .shaped cells on the apical surface

Pseudostratified epithelium is a type of epithelium that has cells which all touch the basement membrane. Pseudostratified epithelium is only one cell layer thick. Pseudostratified epithelium appears stratified, but it is not really stratified. Thus the .name. The prefix "pseudo" means false, such as pseudonym or pseudo-science

.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

Answer: d

Serosa lines the peritoneal cavity, pericardial cavity and pleural cavity. Mucosa lines the .alimentary canal, genitourinary tract and respiratory tract

.7

?Which of the following is a unicellular gland

a. Squamous cell

b. Goblet cell

c. Basal cell

d. Basket cell

e. Sertoli cell

Answer: b

.A goblet cell is a unicellular gland

.8

?What forms the striated border

a. Microvilli

b. Stereocilia

c. Cilia

d. Keratinization

e. Both a and b

Answer: a

Microvilli are the finger like projections seen on the surface of some cells. The .appearance of microvilli form what is also called the brush border or striated border

Stereocilia are very long microvilli. Stereocilia are seen in the epididymis and the hair .cells of the ear

Cilia is the hair like surface modification seen on some epithelia. Cilia are made of .microtubules
Keratinization is seen in the epidermis. Cells in the stratum corneum are essentially just .bags of keratin
.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
Answer: d
Microvilli are the finger like projections seen on the surface of some cells. The .appearance of microvilli form what is also called the brush border or striated border
Stereocilia are very long microvilli. Stereocilia are seen in the epididymis and the hair .cells of the ear
Cilia is the hair like surface modification seen on some epithelia. Cilia are made of .microtubules
Keratinization is seen in the epidermis. Cells in the stratum corneum are essentially just .bags of keratin
.10
?What is another term for an acinar gland
a. Simple gland
b. Compound gland
c. Tubular
d. Alveolar
e. Tubuloalveolar
Answer: d
A simple gland has an unbranched duct. A compound gland has a branched duct. If the secretory portion of a gland is tube shaped, it is called "tubular". If the secretory portion of a gland is flask shaped, it is called "alveolar" or "acinar". If the secretory portion of a ."gland is a tube shaped but at the terminus is flask shaped, it is called "tubuloalveolar

Histology Testbank: Connective Tissue 1a

.1

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

a. Blood

b. Bone

c. Tendon

d. Intervertebral disc

e. Myometrium

Answer: e

Of the four basic tissue types (epithelium, connective tissue, muscle and nervous tissue), connective tissue is the most diverse. Blood, bone, tendon, and intervertebral discs are all composed of connective tissue. The myometrium is the muscular layer of .the uterus. Thus, the myometrium is composed of muscle tissue

.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
Answer: d
There are three types of fibers found in connective tissue: collagen fibers, elastic fibers, and reticular fibers. Collagen fibers are the most abundant fiber type in connective .tissue
.Purkinje fibers are seen in the heart. Purkinje fibers are specialized muscle fibers
.3
?Which connective tissue cell type contains properties of smooth muscle cells
a. Fibroblast
b. Myofibroblast
c. Histiocyte
d. Plasma cell
e. Mast cell
Answer: b
.Myofibroblasts contain properties of both fibroblasts and smooth muscle cells
Fibroblasts, histiocytes, plasma cells, and mast cells are routinely seen in loose connective tissue. Fibroblasts produce collagen. The fibroblast also produces the ground substance in connective tissue. Myofibroblasts contain properties of both fibroblasts and smooth muscle cells. The histiocyte is a connective tissue macrophage. Plasma cells are derived from B lymphocytes. Mast cells secrete histamine. Mast cells also secrete heparin, SRS-A (slow reacting substance of anaphylaxis, ECF-A .(eosinophilic chemotactic factor of anaphylaxis
.4
?Which cell is a connective tissue macrophage
a. Kupffer cells
b. Histiocyte
c. Dust cell
d. Langerhans cell
e. Microglia
Answer: b
Macrophages are mononuclear phagocytes. Many tissues have resident (fixed) macrophages. Fixed macrophages are given a unique name, depending on the tissue that they are located in. Kupffer cells are the hepatic macrophages. Histiocytes are macrophages seen in connective tissue. Dust cells are alveolar macrophage found in the respiratory tract. Langerhans cells are macrophages seen in the skin. Microglia are the .central nervous system macrophages
.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
Answer: d

Connective tissue can be sub-classified into connective tissue proper, specialized .connective tissue and embryonic connective tissue
Connective tissue proper consists of loose irregular connective tissue and dense .connective tissue (regular and irregular)
Specialized connective tissue includes cartilage, bone, adipose tissue, blood and .hemopoietic tissue, and lymphatic tissue
.Embryonic connective tissue includes mesenchyme and mucous 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
Answer: b
Connective tissue can be sub-classified into connective tissue proper, specialized .connective tissue and embryonic connective tissue
Connective tissue proper consists of loose irregular connective tissue and dense .connective tissue (regular and irregular)
Specialized connective tissue includes cartilage, bone, adipose tissue, blood and .hemopoietic tissue, and lymphatic tissue
.Embryonic connective tissue includes mesenchyme and mucous connective tissue
.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
Answer: d
Mesenchyme is embryonic connective tissue. It is an undifferentiated tissue found in the embryo. Mucous connective tissue is a type of embryonic connective tissue; it is a subset of mesenchyme. Wharton's jelly is mucous connective tissue. Loose irregular connective tissue is areolar tissue. Dense irregular connective tissue is seen in the .dermis. Dense regular connective tissue comprises tendons and ligaments
.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
Answer: e
Brown adipose tissue is multilocular adipose tissue. This is present during fetal .development and then decreases after birth

White adipose tissue is unilocular adipose tissue. This type of tissue persists into .adulthood

.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

Answer: e

A peripheral blood smear would be best visualized with Wright's stain. Hematoxylin and eosin stain is the most commonly used tissue stain for routine histological examination. Lipids are best displayed with a sudan stain. Silver impregnation, such as with a reticular stain, can be used to visualize reticular fibers. Collagen fibers can be .differentiated from other fibers by staining with Masson's trichrome stain

histology Testbank: Connective Tissue 2a

.1

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

a. Bone marrow
b. Articular cartilage
c. Heart
d. Mesenchyme
e. Fat

Answer: c

Of the four basic tissue types (epithelium, connective tissue, muscle and nervous tissue), connective tissue is the most diverse. Bone marrow, articular cartilage, mesenchyme and fat are all composed of connective tissue. The heart is a muscle. The .main tissue type in the heart is cardiac muscle

Note from Sarah Bellham: Please be aware that there is connective tissue in the heart. The blood in the heart, for example, is composed of connective tissue. The pericardium is also composed of connective tissue. However, the primary tissue composing the heart .is cardiac muscle

.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

Answer: b

.Microglia are supporting cells in the nervous system

Fibroblasts, histiocytes, plasma cells, and mast cells are routinely seen in loose connective tissue. Fibroblasts produce collagen. The fibroblast also produces the

ground substance in connective tissue. The histiocyte is a tissue macrophage. Plasma cells are derived from B lymphocytes. Mast cells secrete histamine. Mast cells also secrete heparin, SRS-A (slow reacting substance of anaphylaxis, ECF-A (eosinophilic .chemotactic factor of anaphylaxis

.3

?Which connective tissue cell is a tissue macrophage

a. Fibroblast

b. Myofibroblast

c. Histiocyte

d. Plasma cell

e. Mast cell

Answer: c

.The histiocyte is a tissue macrophage

Fibroblasts, histiocytes, plasma cells, and mast cells are routinely seen in loose connective tissue. Fibroblasts produce collagen. The fibroblast also produces the ground substance in connective tissue. Myofibroblasts contain properties of both fibroblasts and smooth muscle cells. The histiocyte is a connective tissue macrophage. Plasma cells are derived from B lymphocytes. Mast cells secrete histamine. Mast cells also secrete heparin, SRS-A (slow reacting substance of anaphylaxis, ECF-A .(eosinophilic chemotactic factor of anaphylaxis

.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

Answer: a

Connective tissue can be sub-classified into connective tissue proper, specialized .connective tissue and embryonic connective tissue

Connective tissue proper consists of loose irregular connective tissue and dense .connective tissue (regular and irregular)

Specialized connective tissue includes cartilage, bone, adipose tissue, blood and .hemopoietic tissue, and lymphatic tissue

.Embryonic connective tissue includes mesenchyme and 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

Answer: b

Connective tissue can be sub-classified into connective tissue proper, specialized .connective tissue and embryonic connective tissue

Connective tissue proper consists of loose irregular connective tissue and dense .connective tissue (regular and irregular)
Specialized connective tissue includes cartilage, bone, adipose tissue, blood and .hemopoietic tissue, and lymphatic tissue
.Embryonic connective tissue includes mesenchyme and mucous connective tissue
.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
Answer: a
Mesenchyme is embryonic connective tissue. It is an undifferentiated tissue found in the embryo. Mucous connective tissue is a type of embryonic connective tissue; it is a subset of mesenchyme. Wharton's jelly is mucous connective tissue. Loose irregular connective tissue is areolar tissue. Dense irregular connective tissue is seen in the .dermis. Dense regular connective tissue comprises tendons and ligaments
.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
Answer: e
Mesenchyme is embryonic connective tissue. It is an undifferentiated tissue found in the embryo. Mucous connective tissue is a type of embryonic connective tissue; it is a subset of mesenchyme. Wharton's jelly is mucous connective tissue. Loose irregular connective tissue is areolar tissue. Dense irregular connective tissue is seen in the .dermis. Dense regular connective tissue comprises tendons and ligaments
.8
?What does connective tissue develop from
a. Mesothelium
b. Mesenchyme
c. Mesangial cells
d. Mesentery
e. Wharton's jelly
Answer: b
.Connective tissue develops from mesenchyme
.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
Answer: d
.Verhoeff Elastic stain stains elastic fibers blue/black. Collagen stains pink/red
.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
Answer: e
Within connective tissue, the cells and fibers are embedded in the ground substance. The ground substance is amorphous material. It is composed of proteoglycans and .glycosaminoglycans. Hyaluronic acid and chondroitin sulfate are glycosaminoglycans

gy Testbank: Connective Tissue 3a
.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
Answer: a
Of the four basic tissue types (epithelium, connective tissue, muscle and nervous tissue), connective tissue is the most diverse. The pubic symphysis, ligaments, areolar tissue, and organ capsules are all composed of connective tissue. The spinal cord is .composed of nervous tissue
.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
Answer: a
Fibroblasts produce collagen. The fibroblast also produces the ground substance in .connective tissue
Fibroblasts, histiocytes, plasma cells, and mast cells are routinely seen in loose connective tissue. Fibroblasts produce collagen. The fibroblast also produces the ground substance in connective tissue. Myofibroblasts contain properties of both fibroblasts and smooth muscle cells. The histiocyte is a tissue macrophage. Plasma cells are derived from B lymphocytes. Mast cells secrete histamine. Mast cells also secrete heparin, SRS-A (slow reacting substance of anaphylaxis, ECF-A (eosinophilic

.chemotactic factor of anaphylaxis
.3
?Which connective tissue cell is derived from B lymphocytes
a. Fibroblast
b. Myofibroblast
c. Histiocyte
d. Plasma cell
e. Mast cell
Answer: d
.Plasma cells are derived from B lymphocytes
Fibroblasts, histiocytes, plasma cells, and mast cells are routinely seen in loose connective tissue. Fibroblasts produce collagen. The fibroblast also produces the ground substance in connective tissue. Myofibroblasts contain properties of both fibroblasts and smooth muscle cells. The histiocyte is a connective tissue macrophage. Plasma cells are derived from B lymphocytes. Mast cells secrete histamine. Mast cells also secrete heparin, SRS-A (slow reacting substance of anaphylaxis, ECF-A .(eosinophilic chemotactic factor of anaphylaxis
.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
Answer: b
Connective tissue can be sub-classified into connective tissue proper, specialized .connective tissue and embryonic connective tissue
Connective tissue proper consists of loose irregular connective tissue and dense .connective tissue (regular and irregular)
Specialized connective tissue includes cartilage, bone, adipose tissue, blood and .hemopoietic tissue, and lymphatic tissue
.Embryonic connective tissue includes mesenchyme and mucous 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
Answer: d
Connective tissue can be sub-classified into connective tissue proper, specialized .connective tissue and embryonic connective tissue
Connective tissue proper consists of loose irregular connective tissue and dense .connective tissue (regular and irregular)

Specialized connective tissue includes cartilage, bone, adipose tissue, blood and .hemopoietic tissue, and lymphatic tissue

.Embryonic connective tissue includes mesenchyme and mucous connective tissue

.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

Answer: b

Mesenchyme is embryonic connective tissue. It is an undifferentiated tissue found in the embryo. Mucous connective tissue is a type of embryonic connective tissue; it is a subset of mesenchyme. Wharton's jelly is mucous connective tissue. Loose irregular connective tissue is areolar tissue. Dense irregular connective tissue is seen in the .dermis. Dense regular connective tissue comprises tendons and ligaments

.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

Answer: e

Mesenchyme is embryonic connective tissue. It is an undifferentiated tissue found in the embryo. Mucous connective tissue is a type of embryonic connective tissue; it is a subset of mesenchyme. Wharton's jelly is mucous connective tissue. Loose irregular connective tissue is areolar tissue. Dense irregular connective tissue is seen in the .dermis. Dense regular connective tissue comprises tendons and ligaments

.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

Answer: a

Connective tissue consists of cells and extracellular fibers in a ground substance and tissue fluid. There is generally abundant extracellular space in connective tissue; the .cells are not tightly packed

.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
Answer: c
A peripheral blood smear would be best visualized with Wright's stain. Hematoxylin and eosin stain is the most commonly used tissue stain for routine histological examination. Lipids are best displayed with a sudan stain. Silver impregnation, such as with a reticular stain, can be used to visualize reticular fibers. Collagen fibers can be .differentiated from other fibers by staining with 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
Answer: c
Within connective tissue, the cells and fibers are embedded in the ground substance. The ground substance is amorphous material. It is composed of proteoglycans and glycosaminoglycans. Hyaluronic acid is a glycosaminoglycan. Dermatan sulfate, .chondroitin sulfate, and keratan sulfate are also glycosaminoglycans

Connective Tissue 4a :
.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
Answer: a
There are three types of fibers found in connective tissue: collagen fibers, elastic fibers, and reticular fibers. Collagen fibers are the most abundant fiber type in connective .tissue
.Purkinje fibers are seen in the heart. Purkinje fibers are specialized muscle fibers
.2
?Which connective tissue cell type produces collagen
a. Fibroblast
b. Connective tissue macrophage
c. Histiocyte
d. Plasma cell
e. Mast cell
Answer: a

Fibroblasts produce collagen. The fibroblast also produces the ground substance in .connective tissue
Fibroblasts, histiocytes, plasma cells, and mast cells are routinely seen in loose connective tissue. Fibroblasts produce collagen. The fibroblast also produces the ground substance in connective tissue. Myofibroblasts contain properties of both fibroblasts and smooth muscle cells. The histiocyte is a connective tissue macrophage. Plasma cells are derived from B lymphocytes. Mast cells secrete histamine. Mast cells also secrete heparin, SRS-A (slow reacting substance of anaphylaxis, ECF-A .(eosinophilic chemotactic factor of anaphylaxis
.3
?Which connective tissue cell type secretes histamine
a. Fibroblast
b. Myofibroblast
c. Histiocyte
d. Plasma cell
e. Mast cell
Answer: e
Mast cells secrete histamine. The also secrete heparin, SRS-A (slow reacting substance .of anaphylaxis, ECF-A (eosinophilic chemotactic factor of anaphylaxis
Fibroblasts, histiocytes, plasma cells, and mast cells are routinely seen in loose connective tissue. Fibroblasts produce collagen. The fibroblast also produces the ground substance in connective tissue. Myofibroblasts contain properties of both fibroblasts and smooth muscle cells. The histiocyte is a connective tissue macrophage. Plasma cells are derived from B lymphocytes. Mast cells secrete histamine. Mast cells also secrete heparin, SRS-A (slow reacting substance of anaphylaxis, ECF-A .(eosinophilic chemotactic factor of anaphylaxis
.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
Answer: c
Connective tissue can be sub-classified into connective tissue proper, specialized .connective tissue and embryonic connective tissue
Connective tissue proper consists of loose irregular connective tissue and dense .connective tissue (regular and irregular)
Specialized connective tissue includes cartilage, bone, adipose tissue, blood and .hemopoietic tissue, and lymphatic tissue
.Embryonic connective tissue includes mesenchyme and mucous 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
Answer: e
Connective tissue can be sub-classified into connective tissue proper, specialized connective tissue and embryonic connective tissue.
Connective tissue proper consists of loose irregular connective tissue and dense connective tissue (regular and irregular).
Specialized connective tissue includes cartilage, bone, adipose tissue, blood and hemopoietic tissue, and lymphatic tissue.
Embryonic connective tissue includes mesenchyme and mucous connective tissue.
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
Answer: c
Mesenchyme is embryonic connective tissue. It is an undifferentiated tissue found in the embryo. Mucous connective tissue is a type of embryonic connective tissue; it is a subset of mesenchyme. Wharton's jelly is mucous connective tissue. Loose irregular connective tissue is areolar tissue. Dense irregular connective tissue is seen in the dermis. Dense regular connective tissue comprises tendons and ligaments.
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
Answer: e
Brown adipose tissue is multilocular adipose tissue. This is present during fetal development and then decreases after birth.
White adipose tissue is unilocular adipose tissue. This type of tissue persists into adulthood.
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
Answer: d

A peripheral blood smear would be best visualized with Wright's stain. Hematoxylin and eosin stain is the most commonly used tissue stain for routine histological examination. Lipids are best displayed with a sudan stain. Silver impregnation, such as with a reticular stain, can be used to visualize reticular fibers. Collagen fibers can be .differentiated from other fibers by staining with Masson's trichrome stain

Histology Testbank: Cartilage 1a

.1

?What type of basic tissue type is cartilage

a. Muscle

b. Nervous

c. Cartilage

d. Epithelium

e. Connective tissue

Answer: e

Of the four basic tissue types (epithelium, connective tissue, muscle and nervous .tissue), connective tissue is the most diverse. Cartilage is a type of connective tissue

.2

?How many types of cartilage are there

a. 1
b. 2
c. 3
d. 4
e. 5
Answer: c
.There are three types of cartilage: hyaline cartilage, elastic cartilage and fibrocartilage
.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
Answer: d
The space of Disse is in the liver. The space of Disse is also called the perisinusoidal .space. It is the space between the liver sinusoids and the hepatocytes
The space of Mall is also in the liver. The space of Mall is located at the portal canal and is the region between the connective tissue and the liver parenchymal cells. It is the site .where lymph is formed within the liver
.A vacuole is a small clear space within an individual cell
A lacuna is a small space or depression. The space that the chondrocyte rests in is a .lacuna
Howship's lacuna is seen in bone. Howship's lacuna is a space seen underneath an .osteoclast
.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
Answer: e
A peripheral blood smear would be best visualized with Wright's stain. Hematoxylin and eosin stain is the most commonly used tissue stain for routine histological examination. Lipids are best displayed with a sudan stain. Silver impregnation, such as with a reticular stain, can be used to visualize reticular fibers. Resorcin fuchsin and orcein .would best show the elastic fibers in elastic cartilage
.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

Answer: b
.Elastic cartilage is found in the walls of the eustachian tube
.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
Answer: a
Hyaline cartilage forms the skeleton of the fetus. The cartilage forms a template of the bones. Endochondral ossification will occur during the childhood, replacing the hyaline .cartilage with bone
.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
Answer: a
The "Adam's apple" is a nickname for part of the larynx formed by the thyroid cartilage. .The thyroid cartilage is composed of hyaline cartilage
.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
Answer: c
.Fibrocartilage forms the intervertebral disc
.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
Answer: e
The hammer, anvil and stirrup are the bones in the middle ear. They are made of bone, .not cartilage
.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
Answer: b
.Hyaline cartilage is characterized by a glassy matrix
.Elastic cartilage has elastic fibers in the matrix
.Fibrocartilage has thick bundles of collagen fibers in the matrix
All three types of cartilage are composed of chondrocytes residing in lacunae and a .hydrous extracellular matrix. All three types of cartilage are avascular
.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
Answer: e
.Hyaline cartilage is characterized by a glassy matrix
.Elastic cartilage has elastic fibers in the matrix
.Fibrocartilage has thick bundles of collagen fibers in the matrix
All three types of cartilage are composed of chondrocytes residing in lacunae and a .hydrous extracellular matrix. All three types of cartilage are avascular

Histology Testbank: Cartilage 2a

.1
?What cell produces the cartilaginous matrix
a. Chondrocyte
b. Chondroblast
c. Osteocyte
d. Osteoclast
e. Bone lining cell
Answer: b
The mature cell in cartilage is a chondrocyte. It rests in a lacunae surrounded by matrix. A chondroblast is an immature cartilage cell which produces the cartilaginous matrix. An osteocyte is a mature bone cell. An osteoclast is a bone cell which is involved .in resorption of bone. A bone lining cell is a resting osteoblast
.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

Answer: d
The larynx is composed of several cartilages. The thyroid cartilage, cricoid cartilage, arytenoid cartilages, corniculate cartilages and cuneiform cartilages are all composed of hyaline cartilage. The epiglottis is elastic cartilage. There is no fibrocartilage in the .larynx

?Which of the following is NOT a glycosaminoglycan in cartilage .3
a. Chondroitin sulfate
b. Proteoglycans
c. Keratan sulfate
d. Hyaluronic acid
e. All of the above are glycosaminoglycans in cartilage
Answer: b
.Proteoglycans are composed of a protein core and attached glycosaminoglycans
.Chondroitin sulfate, keratan sulfate, and hyaluronic acid are all glycosaminoglycans

.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
Answer: a
.Hyaline cartilage is characterized by a glassy matrix
.Elastic cartilage has elastic fibers in the matrix
.Fibrocartilage has thick bundles of collagen fibers in the matrix
All three types of cartilage are composed of chondrocytes residing in lacunae and a .hydrous extracellular matrix. All three types of cartilage are avascular

.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
Answer: d
.Hyaline cartilage is characterized by a glassy matrix
.Elastic cartilage has elastic fibers in the matrix
.Fibrocartilage has thick bundles of collagen fibers in the matrix
All three types of cartilage are composed of chondrocytes residing in lacunae and a .hydrous extracellular matrix. All three types of cartilage are avascular

.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
Answer: a
.Hyaline cartilage is the most abundant type of cartilage
.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
Answer: a
.Hyaline cartilage forms the articular surface on bones
.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
Answer: b
.Elastic cartilage is found in the external ear
Note from Sarah Bellham: If you bend your ear forward, it bounces back into its proper
.position. This is due to the elastic cartilage
.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
Answer: a
.Costal cartilage is the cartilage at the end of the ribs. It is hyaline cartilage
.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
Answer: c
.Fibrocartilage forms the symphysis pubis
.11
?What structure is called white cartilage

a. Hyaline cartilage
b. Elastic cartilage
c. Fibrocartilage
d. Compact bone
e. Spongy bone
Answer: c
Elastic cartilage is sometimes referred to as yellow cartilage. Fibrocartilage is
.sometimes referred to as white cartilage

Histology Testbank: Cartilage 3a
.1
?What is the connective tissue covering which surrounds cartilage
a. Perimysium
b. Periosteum
c. Perichondrium
d. Perineurium
e. Endosteum
Answer: c
.The perimysium is the connective tissue sheath around fascicles of muscle
.The periosteum is the connective tissue covering of a bone
.The perichondrium is the connective tissue which surrounds cartilage
.The perineurium is the covering of nerve fascicles
The endosteum is the lining of the inner bone (the side which abuts the medullary
.cavity)
Note from Sarah Bellham: The prefix "peri" means around, such as in the word
"perimeter". The prefix "endo" means within or inner, such as in "endosteum",
.""endocrine", "endoscope
.2
?Where does cartilage come from
a. Ectoderm
b. Endoderm
c. Mesenchyme
d. Connective tissue
e. None of the above
Answer: c
.Cartilage arises from mesenchyme
.3
?What is the mature cell in cartilage called
a. Chondrocyte
b. Chondroblast
c. Osteocyte
d. Osteoclast
e. Bone lining cell
Answer: a

The mature cell in cartilage is a chondrocyte. It rests in a lacunae surrounded by matrix. A chondroblast is an immature cartilage cell which produces the cartilaginous matrix. An osteocyte is a mature bone cell. An osteoclast is a bone cell which is involved .in resorption of bone. A bone lining cell is a resting osteoblast

.4

:Regarding the blood supply to cartilage

a. Cartilage has minimal circulation

b. Cartilage has a duel circulation

c. Cartilage is highly vascular

d. Cartilage is avascular

e. There is nothing unique about the blood supply to cartilage

Answer: d

.Cartilage is avascular. Nutrients reach cartilage by diffusion from the adjacent tissues

.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

Answer: c

.Hyaline cartilage is characterized by a glassy matrix

.Elastic cartilage has elastic fibers in the matrix

.Fibrocartilage has thick bundles of collagen fibers in the matrix

All three types of cartilage are composed of chondrocytes residing in lacunae and a .hydrous extracellular matrix. All three types of cartilage are avascular

.6

?What percent of the matrix of cartilage is water

a. 0

b. 10-40

c. 40-60

d. 60-80

e. 80-100

Answer: d

.The matrix of cartilage is 60-80% water

.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

Answer: a

.Hyaline cartilage forms the epiphyseal growth plate

.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
Answer: a
.The rings of the trachea are composed of hyaline cartilage
.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
Answer: c
.The epiglottis is part of the larynx. It is composed of elastic cartilage
.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
Answer: c
.Fibrocartilage is present in the temporomandibular joint
.11
?What structure is called yellow cartilage
a. Hyaline cartilage
b. Elastic cartilage
c. Fibrocartilagej
d. Compact bone
e. Spongy bone
Answer: b
Elastic cartilage is sometimes referred to as yellow cartilage. Fibrocartilage is
.sometimes referred to as white cartilage

Histology Testbank: Bone 1a

.1
?What is compact bone
a. Dense bone
b. Woven bone
c. Immature bone
d. Cancellous bone
e. Spongy bone
Answer: a
.Compact bone is also called dense bone. Compact bone has the Haversian system
.Immature bone is woven bone. It is nonlamellar bone or bundle bone
Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as
.spicules. Marrow spaces are also present
.2
?What cell is involved in bone resorption
a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: a
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone
.resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian
.system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell
.Osteoid is unmineralized bone matrix
.3
?What type of basic tissue type is bone
a. Epithelium
b. Connective tissue
c. Muscle
d. Nervous
e. Bone
Answer: b

Of the four basic tissue types (epithelium, connective tissue, muscle and nervous .tissue), connective tissue is the most diverse. Bone is a type of connective tissue
Histology hint from Sarah Bellham: Keep in mind that the word "bone" can refer to either a type of tissue or to the organ. As a tissue, bone tissue is a type of connective tissue. When referring to a bone (the organ), there will be several types of tissue .present

.4

?What is woven bone

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

Answer: d

.Compact bone is also called dense bone. Compact bone has the Haversian system
.Immature bone is woven bone. It is nonlamellar bone or bundle bone
Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as .spicules. Marrow spaces are also present

.5

?What are the spicules on spongy bone called

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

Answer: c

.Canaliculi are the little tunnels within bone
.Sharpey's fibers are collagen fibers that extend into a bone at an angle
.Trabeculae are the spicules seen with spongy bone
.Tome's process is seen in teeth, this process is responsible for enamel production
.An osteocyte rests in a space called a lacuna

.6

?Which cell type is responsible for bone breakdown

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

Answer: d

The mature cell in cartilage is a chondrocyte. It rests in a lacunae surrounded by matrix. A chondroblast is an immature cartilage cell which produces the cartilaginous matrix. An osteocyte is a mature bone cell. An osteoclast is a bone cell which is involved .in resorption of bone. A bone lining cell is a resting osteoblast

.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
Answer: c
Intramembranous bone formation is the process of bone formation where the bone is formed without a cartilage template. Endochondral bone formation is the process of .bone formation where the bone is formed using a cartilage template
.8
?What forms the epiphyseal growth plate
a. Elastic cartilage
b. Fibrocartilage
c. Hyaline cartilage
d. Compact bone
e. Spongy bone
Answer: c
.Hyaline cartilage forms the epiphyseal growth plate
.9
?Which type of bone has spicules
a. Immature bone
b. Dense bone
c. Compact bone
d. Cancellous bone
e. Woven bone
Answer: d
.Compact bone is also called dense bone. Compact bone has the Haversian system
.Immature bone is woven bone. It is nonlamellar bone or bundle bone
Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as .spicules. Marrow spaces are also present
.10
?What sits in a lacuna
a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: c
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone .resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian .system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell

.Osteoid is unmineralized bone matrix

Histology Testbank: Bone 2a

.1

?What is dense bone

a. Immature bone

b. Cancellous bone

c. Compact bone

d. Woven bone

e. Spongy bone

Answer: c

.Compact bone is also called dense bone. Compact bone has the Haversian system

.Immature bone is woven bone. It is nonlamellar bone or bundle bone

Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as .spicules. Marrow spaces are also present

.2

?Which cell is a resting osteoblast

a. Chondrocyte

b. Chondroblast

c. Osteocyte

d. Osteoclast

e. Bone lining cell

Answer: e

The mature cell in cartilage is a chondrocyte. It rests in a lacunae surrounded by matrix. A chondroblast is an immature cartilage cell which produces the cartilaginous matrix. An osteocyte is a mature bone cell. An osteoclast is a bone cell which is involved .in resorption of bone. A bone lining cell is a resting osteoblast

.3

?What are the mineral crystals in bone called

a. Hydroxyapatite

b. Calcite

c. Tourmaline

d. Rubellite

e. Indicolite

Answer: a

Calcium is in a mineral structure in bone and tooth enamel called hydroxyapatite. The chemical formula is [Ca10 (PO4)6(OH)2]

Calcite crystals are calcium carbonate. The main component of limestone is calcite and .seashells are made of calcite. However, calcite crystals are not found in man

Tourmaline is a crystal found in nature. Pink-red tourmaline is called rubellite. Blue tourmaline is known as indicolite. Tourmaline crystals are not found in man, although .sometimes they are found on the necks and fingers of women in the form of jewelry

.4

?What is the cylindrical structure in compact bone

a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: b
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone .resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian .system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell
.Osteoid is unmineralized bone matrix
.5
?What are Sharpey's fibers
a. Elastic fibers
b. Collagen fibers
c. Reticular fibers
d. Trabeculae
e. Dense regular connective tissue
Answer: b
.Sharpey's fibers are collagen fibers that extend into a bone at an angle
.6
?What is the space that an osteocyte rests in
a. Canaliculi
b. Sharpey's fibers
c. Trabeculae
d. Tome's process
e. Lacuna
Answer: e
.Canaliculi are the little tunnels within bone
.Sharpey's fibers are collagen fibers that extend into a bone at an angle
.Trabeculae are the spicules seen with spongy bone
.Tome's process is seen in teeth, this process is responsible for enamel production
.An osteocyte rests in a space called a 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
Answer: d
Intramembranous bone formation is the process of bone formation where the bone is formed without a cartilage template. Endochondral bone formation is the process of

.bone formation where the bone is formed using a cartilage template
.8
?What is the primary component of red marrow
a. Hematopoietic tissue
b. Fat
c. Cartilage
d. Fibrous tissue
e. Bone
Answer: a
.Red marrow contains active hematopoietic tissue. Yellow marrow is primarily fat
.9
?What cell is an immature bone cell
a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: d
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone .resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian .system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell
.Osteoid is unmineralized bone matrix
.10
?What is bundle bone
a. Cancellous bone
b. Compact bone
c. Dense bone
d. Spongy bone
e. Immature bone
Answer: e
.Compact bone is also called dense bone. Compact bone has the Haversian system
.Immature bone is woven bone. It is nonlamellar bone or bundle bone
Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as .spicules. Marrow spaces are also present

Histology Testbank: Bone 3a

.1
?What is cancellous bone
a. Dense bone
b. Woven bone
c. Immature bone

d. Compact bone
e. Spongy bone
Answer: e
.Compact bone is also called dense bone. Compact bone has the Haversian system
.Immature bone is woven bone. It is nonlamellar bone or bundle bone
Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as
.spicules. Marrow spaces are also present
.2
?What cell is involved in laying down new bone
a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: d
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone
.resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian
.system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell
.Osteoid is unmineralized bone matrix
.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
Answer: b
The matrix of bone is mineralized. Within the matrix are collagen fibers and
.proteoglycans
Elastic fibers and reticular fibers are types of fibers seen in connective tissue. However,
.collagen fibers are the fibers found in bone
Although bone is classified as a connective tissue, it is not classified nor is it composed
.of dense irregular connective tissue. Dense irregular tissue is seen in the dermis
Bone is not classified nor is it composed of dense regular connective tissue. Dense
.regular connective tissue is seen in tendons and ligaments
.4
?What are the small tunnels seen in bone
a. Canaliculi
b. Sharpey's fibers
c. Trabeculae
d. Tome's process
e. Lacuna

Answer: a
.Canaliculi are the little tunnels within bone
.Sharpey's fibers are collagen fibers that extend into a bone at an angle
.Trabeculae are the spicules seen with spongy bone
.Tome's process is seen in teeth, this process is responsible for enamel production
.An osteocyte rests in a space called a 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
Answer: e
The space of Disse is in the liver. The space of Disse is also called the perisinusoidal .space. It is the space between the liver sinusoids and the hepatocytes
The space of Mall is also in the liver. The space of Mall is located at the portal canal and is the region between the connective tissue and the liver parenchymal cells. It is the site .where lymph is formed within the liver
.A vacuole is a small clear space within an individual cell
A lacuna is a small space or depression. The space that the chondrocyte rests in is a .lacuna
Howship's lacuna is seen in bone. Howship's lacuna is a space seen underneath an .osteoclast
.6
?What is the covering of a bone
a. Perimysium
b. Periosteum
c. Perichondrium
d. Perineurium
e. Endosteum
Answer: b
.The perimysium is the connective tissue sheath which surrounds muscle fascicles
.The periosteum is the connective tissue covering of a bone
.The perichondrium is the connective tissue which surrounds cartilage
.The perineurium is the covering of nerve fascicles
The endosteum is the lining of the inner bone (the side which abuts the medullary .cavity)
Note from Sarah Bellham: The prefix "peri" means around, such as in the word "perimeter". The prefix "endo" means within or inner, such as in "endosteum", .""endocrine", "endoscope
.7
?What forms the articular surface on bones
a. Spongy bone
b. Compact bone

c. Hyaline cartilage
d. Elastic cartilage
e. Fibrocartilage
Answer: c
.Hyaline cartilage forms the articular surface on bones
.8
?What is the primary component of yellow marrow
a. Hematopoietic tissue
b. Fat
c. Cartilage
d. Fibrous tissue
e. Bone
Answer: b
.Red marrow contains active hematopoietic tissue. Yellow marrow is primarily fat
.9
?What is another term for the Haversian system
a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: b
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone
.resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian
.system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell
.Osteoid is unmineralized bone matrix
.10
?What is nonlamellar bone
a. Woven bone
b. Dense bone
c. Cancellous bone
d. Compact bone
e. Spongy bone
Answer: a
.Compact bone is also called dense bone. Compact bone has the Haversian system
.Immature bone is woven bone. It is nonlamellar bone or bundle bone
Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as
.spicules. Marrow spaces are also present

Histology Testbank: Bone 4a
.1

?What is the mature bone cell called
a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: c
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone .resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian .system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell
.Osteoid is unmineralized bone matrix
.2
?What is immature bone
a. Dense bone
b. Woven bone
c. Cancellous bone
d. Compact bone
e. Spongy bone
Answer: b
.Compact bone is also called dense bone. Compact bone has the Haversian system
.Immature bone is woven bone. It is nonlamellar bone or bundle bone
Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as .spicules. Marrow spaces are also present
.3
?What is unmineralized bone matrix
a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: e
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone .resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian .system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell
.Osteoid is unmineralized bone matrix
.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
Answer: b
.Canaliculi are the little tunnels within bone
.Sharpey's fibers are collagen fibers that extend into a bone at an angle
.Trabeculae are the spicules seen with spongy bone
.Tome's process is seen in teeth, this process is responsible for enamel production
.An osteocyte rests in a space called a lacuna
.5
?Which cell is the mature bone cell
a. Chondrocyte
b. Chondroblast
c. Osteocyte
d. Osteoclast
e. Bone lining cell
Answer: c
The mature cell in cartilage is a chondrocyte. It rests in a lacunae surrounded by matrix. A chondroblast is an immature cartilage cell which produces the cartilaginous matrix. An osteocyte is a mature bone cell. An osteoclast is a bone cell which is involved .in resorption of bone. A bone lining cell is a resting osteoblast
.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
Answer: e
.The perimysium is the connective tissue sheath which surrounds muscle fascicles
.The periosteum is the connective tissue covering of a bone
.The perichondrium is the connective tissue which surrounds cartilage
.The perineurium is the covering of nerve fascicles
The endosteum is the lining of the inner bone (the side which abuts the medullary .cavity)
Note from Sarah Bellham: The prefix "peri" means around, such as in the word "perimeter". The prefix "endo" means within or inner, such as in "endosteum", .""endocrine", "endoscope
.7
?What forms the skeleton of the fetus
a. Elastic cartilage
b. Hyaline cartilage
c. Fibrocartilage
d. Spongy bone
e. Compact bone

Answer: b
Hyaline cartilage forms the skeleton of the fetus. The cartilage forms a template of the bones. Endochondral ossification will occur during the childhood, replacing the hyaline .cartilage with bone
.8
?Which of the following is a multinucleated cell
a. Osteoclast
b. Osteon
c. Osteocyte
d. Osteoblast
e. Osteoid
Answer: a
An osteoclast is a multinucleated cell involved in the degradation of bone. It is a bone .resorbing cell
An osteon is the cylindrical structure with bone. An osteon is also called a Haversian .system
.The mature bone cell is called an osteocyte. It sits in a space, called a lacuna
.An osteoblast is an immature bone cell. The osteoblast is the bone forming cell
.Osteoid is unmineralized bone matrix
.9
What is spongy bone
a. Immature bone
b. Compact bone
c. Cancellous bone
d. Dense bone
e. Woven bone
Answer: c
.Compact bone is also called dense bone. Compact bone has the Haversian system
.Immature bone is woven bone. It is nonlamellar bone or bundle bone
Spongy bone is also referred to as cancellous bone. The mineralized tissue is seen as .spicules. Marrow spaces are also present

Histology Testbank: Blood 1a

.1
?Which of the four basic tissue types does blood belong to
a. Epithelium
b. Connective tissue
c. Muscle
d. Nervous tissue
e. Blood
Answer: b
There are four basic tissue types: epithelium, connective tissue, muscle and nervous tissue. Connective tissue is the most diverse. Blood is considered a type of connective .tissue
.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
Answer: e
Blood is composed of the formed elements and plasma. Plasma is the liquid portion of blood. The formed elements consist of the cells and cell fragments. The erythrocytes (red blood cells), platelets, and leukocytes (white blood cells) are all considered formed .elements
Erythrocytes do not contain a nucleus. During their development within the bone marrow, they have a nucleus. However, prior to their entering into the blood stream, .the nucleus is ejected
Platelets are cell fragments. Platelets also do not contain a nucleus. They are fragments from megakaryocytes within the bone marrow. Leukocytes, which include monocytes, .are cells with a nucleus
.3
?What comes from a megakaryocyte
a. Lymphocytes
b. Basophils
c. Erythrocytes
d. Monocytes
e. Platelets
Answer: e

Platelets are cell fragments. They are fragments from megakaryocytes within the bone .marrow
Histology hint from Sarah Bellham: The prefix "mega" is from the Greek "megas" which means great or big. For example: megaphone, megalomaniac, megabyte, and .megakaryocyte
.4
?Which leukocyte is the most abundant in a peripheral smear of blood
a. Lymphocytes
b. Basophils
c. Neutrophil
d. Monocytes
e. Eosinophils
Answer: c

.Neutrophils are the most abundant leukocyte

Leukocytes are the white blood cells. The order of frequency of the leukocytes is: .neutrophil, lymphocyte, monocyte, eosinophil, basophil

Histology hint from Sarah Bellham: The order of frequency of the leukocytes can be ."remembered by the mnemonic: "Never Let Monkeys Eat Bananas

histology monkey
.5
?Which of the following is not a granulocyte
a. Lymphocytes
b. Neutrophil
c. PMN
d. Eosinophils
e. Basophils
Answer: a
The granulocytes are named because of the presence of visible cytoplasmic granules. The granulocytes consist of neutrophils, eosinophils, and basophils. "PMN" is an abbreviation for polymorphonuclear neutrophil. Thus, it is a neutrophil, which is a .granulocyte. The non-granulocytes are lymphocytes and monocytes
Histology hint from Sarah Bellham: Poly is from the Greek "polys", which means many. ."Poly" is also sometimes used as a nickname for polymorphonuclear leukocyte
.6
?Which of the following is a granulocyte
a. Thrombocyte
b. Lymphocyte
c. Eosinophil
d. Monocyte
e. Erythrocyte
Answer: c

The granulocytes are named because of the presence of visible cytoplasmic granules. The granulocytes consist of neutrophils, eosinophils, and basophils. The non-granulocytes are lymphocytes and monocytes. Erythrocytes are red blood cells. A .thrombocyte is a platelet

Note from Sarah Bellham: The suffix (or prefix) "phil" comes from the Greek word meaning love. It is used to specify an attraction or affinity towards something. It is seen .in such words as philosophy, philanthropy and bibliophile

Histology heart

This suffix is used in naming the three granulocytes: eosinophils, basophils, and neutrophils. Eosinophils "love" or are attracted to the eosin dye; thus the granules in an eosinophil are orange/pink. Basophils "love" or are attracted to the basophilic dye; thus the granules in a basophil are blue. Neutrophils "love" or are attracted to the neutral .dye; thus the granules in a neutrophil are neutral colored

.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

Answer: d

Neutrophils are granulocytes. Neutrophils have a multi-lobed nucleus. The lobes are separated by a thin strand. Because of the shape of the nucleus, neutrophils are also ."called "polymorphonuclear neutrophils", "poly's", "PMN", or "polymorph

.8

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

a. Neutrophil

b. Lymphocytes

c. Monocytes

d. Eosinophil

e. Basophils

Answer: a

The leukocytes consist of neutrophils, lymphocytes, monocytes, eosinophils, and .basophils

Neutrophils are granulocytes. Neutrophils have a multi-lobed nucleus. The lobes are separated by a thin strand. Because of the shape of the nucleus, neutrophils are also .called "polymorphonuclear neutrophils", "poly's", "PMN", or "polymorph

Lymphocytes are agranulocytes. Lymphocytes can be categorized by three sizes: small, medium, and large. The small lymphocytes are the smallest leukocyte, being only .slightly larger than an erythrocyte

.Monocytes are agranulocytes. They are the largest leukocyte

Eosinophils are granulocytes. Eosinophils have prominent orange pink granules. The .nucleus of eosinophils is usually bi-lobed

Basophils are granulocytes. Basophils have large blue granules, which often obscure the .nucleus. The granules are basophilic, therefore they are blue

.9
?Which cell has large blue granules, often obscuring the nucleus
a. Neutrophil
b. Lymphocytes
c. Monocytes
d. Eosinophil
e. Basophils
Answer: e
The leukocytes consist of neutrophils, lymphocytes, monocytes, eosinophils, and .basophils
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Basophils are granulocytes. Basophils have large blue granules, which often obscure the .nucleus. The granules are basophilic, therefore they are blue
.10
?"Which of the following is not considered a "formed element
a. Plasma
b. Erythrocytes
c. Platelets
d. Leukocytes
e. Red blood cells
Answer: a
Blood is composed of the formed elements and plasma. Plasma is the liquid portion of blood. The formed elements consist of the cells and cell fragments. The erythrocytes (red blood cells), platelets, and leukocytes (white blood cells) are all considered formed .elements

Histology Testbank: Blood 2a

.1
Approximately what percentage of the volume of blood do the formed elements ?comprise
a. 5
b. 25
c. 45
d. 75
e. 90
Answer: c

Blood is composed of the formed elements and plasma. Plasma is the liquid portion of blood. The formed elements consist of the cells and cell fragments. The erythrocytes (red blood cells), platelets, and leukocytes (white blood cells) are all considered formed .elements
When a sample of blood is centrifuged, the percentage occupied by the formed elements .is the hematocrit. An average hematocrit is about 45%
.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
Answer: c
Erythrocytes (red blood cells) are the most abundant formed element in a peripheral .smear of blood
.3
?Which leukocyte is the least abundant in a peripheral smear of blood
a. Lymphocytes
b. Basophils
c. Neutrophil
d. Monocytes
e. Eosinophils
Answer: b

.Basophils are the least abundant leukocyte

Leukocytes are the white blood cells. The order of frequency of the leukocytes is: .neutrophil, lymphocyte, monocyte, eosinophil, basophil

Histology hint from Sarah Bellham: The order of frequency of the leukocytes can be ."remembered by the mnemonic: "Never Let Monkeys Eat Bananas

histology monkey
.4
?Which of the following is not a granulocyte
a. PMN
b. Basophils
c. Neutrophil
d. Monocytes
e. Eosinophils
Answer: d
The granulocytes are named because of the presence of visible cytoplasmic granules. The granulocytes consist of neutrophils, eosinophils, and basophils. "PMN" is an abbreviation for polymorphonuclear neutrophil. Thus, it is a neutrophil, which is a

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.5
?Which of the following is a granulocyte
a. Thrombocyte
b. Monocyte
c. Lymphocyte
d. Basophil
e. Erythrocyte
Answer: d
The granulocytes are named because of the presence of visible cytoplasmic granules. The granulocytes consist of neutrophils, eosinophils, and basophils. The non-granulocytes are lymphocytes and monocytes. Erythrocytes are red blood cells. A .thrombocyte is a platelet
Histology hint from Sarah Bellham: The suffix (or prefix) "phil" comes from the Greek word meaning love. It is used to specify an attraction or affinity towards something. It is .seen in such words as philosophy, philanthropy and bibliophile
Histology heart
This suffix is used in naming the three granulocytes: eosinophils, basophils, and neutrophils. Eosinophils "love" or are attracted to the eosin dye; thus the granules in an eosinophil are orange/pink. Basophils "love" or are attracted to the basophilic dye; thus the granules in a basophil are blue. Neutrophils "love" or are attracted to the neutral .dye; thus the granules in a neutrophil are neutral colored
.6
?"Which of the following is described as having a "central pallor
a. Leukocytes
b. Monocytes
c. Eosinophils
d. Platelets
e. Erythrocytes
Answer: e
Erythrocytes (red blood cells) are described as biconcave discs. When stained, this phenomenon results in the central portion of the cell staining lighter, thus the "central ."pallor
Histology hint from Sarah Bellham: A biconcave disc can be visualized by holding two .Frisbees together so that the middle portion is thinner than the top or bottom
.7
?Which is the smallest leukocyte
a. Neutrophil
b. Lymphocytes
c. Monocytes
d. Eosinophil
e. Basophils
Answer: b

The leukocytes consist of neutrophils, lymphocytes, monocytes, eosinophils, and .basophils

Neutrophils are granulocytes. Neutrophils have a multi-lobed nucleus. The lobes are separated by a thin strand. Because of the shape of the nucleus, neutrophils are also .called "polymorphonuclear neutrophils", "poly's", "PMN", or "polymorph

Lymphocytes are agranulocytes. Lymphocytes can be categorized by three sizes: small, medium, and large. The small lymphocytes are the smallest leukocyte, being only .slightly larger than an erythrocyte

.Monocytes are agranulocytes. They are the largest leukocyte

Eosinophils are granulocytes. Eosinophils have prominent orange pink granules. The .nucleus of eosinophils is usually bi-lobed

Basophils are granulocytes. Basophils have large blue granules, which often obscure the .nucleus. The granules are basophilic, therefore they are blue

.8

?Which leukocyte usually has a bi-lobed nucleus

a. Neutrophil

b. Lymphocytes

c. Monocytes

d. Eosinophil

e. Basophils

Answer: d

The leukocytes consist of neutrophils, lymphocytes, monocytes, eosinophils, and .basophils

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.9

?What is the buffy coat

a. Leukocytes

b. Platelets

c. Erythrocytes

d. Plasma

e. Both a and b

:Answer e

The buffy coat is seen in a sample of centrifuged blood. It is the thin layer above the red .blood cells, but below the plasma. It consists of the leukocytes and platelets

.10

?What is another term for a platelet
a. Thrombocyte
b. Monocyte
c. Lymphocyte
d. Basophil
e. Erythrocyte
Answer: a
.A thrombocyte is another name for a platelet

Histology Testbank: Blood 3a
.1
?Which leukocyte is the second most abundant in a peripheral smear of blood
a. Lymphocytes
b. Basophils
c. Neutrophil
d. Monocytes
e. Eosinophils
Answer: a

.Lymphocytes are the second most abundant leukocyte

Leukocytes are the white blood cells. The order of frequency of the leukocytes is:
.neutrophil, lymphocyte, monocyte, eosinophil, basophil

Histology hint fom Sarah Bellham: The order of frequency of the leukocytes can be
."remembered by the mnemonic: "Never Let Monkeys Eat Bananas

histology monkey
.2
?Which of the following is a granulocyte
a. Lymphocyte
b. Neutrophil
c. Monocyte
d. Erythrocyte
e. Thrombocyte
Answer: b
The granulocytes are named because of the presence of visible cytoplasmic granules. The granulocytes consist of neutrophils, eosinophils, and basophils. The non-granulocytes are lymphocytes and monocytes. Erythrocytes are red blood cells. A .thrombocyte is a platelet
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.3

?Which leukocyte has orange-pink granules

a. Neutrophil

b. Lymphocytes

c. Monocytes

d. Eosinophil

e. Basophils

Answer: d

The leukocytes consist of neutrophils, lymphocytes, monocytes, eosinophils, and .basophils

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Basophils are granulocytes. Basophils have large blue granules, which often obscure the .nucleus. The granules are basophilic, therefore they are blue

.4

?What is another term for a red blood cell

a. Thrombocyte

b. Monocyte

c. Lymphocyte

d. Basophil

e. Erythrocyte

Answer: e

.An erythrocyte is another name for a red blood cell

.5

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

a. Platelets

b. Erythrocytes

c. Leukocytes

d. Monocytes

e. Eosinophils

Answer: b

Erythrocytes (red blood cells) are described as biconcave discs. When stained, this phenomenon results in the central portion of the cell staining lighter, thus the "central

."pallor
Histology hint from Sarah Bellham: A biconcave disc can be visualized by holding two .Frisbees together so that the middle portion is thinner than the top or bottom
.6
?Which is the largest leukocyte
a. Neutrophil
b. Lymphocytes
c. Monocytes
d. Eosinophil
e. Basophils
Answer: c
The leukocytes consist of neutrophils, lymphocytes, monocytes, eosinophils, and .basophils
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Basophils are granulocytes. Basophils have large blue granules, which often obscure the .nucleus. The granules are basophilic, therefore they are blue

Histology Testbank: Muscle 1a

.1

?What is the connective tissue covering of a muscle fascicle

a. Sarcolemma

b. Endomysium

c. Epimysium

d. Sarcoplasm

e. Perimysium

Answer: e

The outer connective tissue covering of a muscle is the epimysium. Within the muscle, there are subdivisions called fascicles. The perimysium surrounds these muscle fascicles. The endomysium is the covering around an individual muscle fiber. The sarcolemma is the plasma membrane of a muscle cell. The sarcoplasm is the cytoplasm .of a muscle cell

.2

?What is actin

a. Myofilament

b. Myosin

c. Muscle fibers

d. Myofibrils

e. Myocardium

Answer: a

Myofilaments are the contractile protein within a muscle cell. The myofilaments are actin and myosin. The thin filaments are actin and the thick filaments are myosin. The muscle cell is a muscle fiber. The term "muscle cell" and "muscle fiber" are synonymous. A myofibril is a longitudinal bundle of myofilaments within a muscle cell. Myocardium is .the muscular layer of the heart. Thus, the myocardium is composed of cardiac muscle

.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

Answer: e

There are two chief categories of muscle: striated and non striated muscle (smooth .muscle)

Striated muscle can be sub-categorized into cardiac muscle and skeletal muscle. The tongue, biceps muscle, and upper esophagus are made of striated muscle. The heart is .composed of cardiac muscle

Non striated muscle is also called smooth muscle. Smooth muscle is involuntary muscle. .It is found in viscera and blood vessels

.4

?What is a receptor in muscle
a. Motor unit
b. Motor neuron
c. Motor end plate
d. Neuromuscular spindle
e. Neurotransmitter
Answer: d
A single motor neuron and the aggregation of muscle fibers innervated by that single neuron is called the motor unit. A motor neuron is a neuron which innervates a muscle cell. The point of contact where a neuron contacts a muscle is the motor end plate. A neuromuscular spindle is a receptor which is sensitive to stretching of the muscle. A .neurotransmitter is the chemical released by a nerve at a synapse
.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
Answer: b
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: b
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance

.White fiber and fast twitch muscle is for a burst of power
.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
Answer: a
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: b
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: d
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are

white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: d
The A band is the darker staining band. The I band is the light band. The I band is made of thin filaments. The Z line runs through the I band. The H band bisects the A band. .The M line runs through the H band
.A sarcomere is the segment that runs from Z line to Z line

Histology Testbank: Muscle 2a
.1
?What is the outer connective tissue covering of a muscle
a. Epimysium
b. Sarcoplasm
c. Perimysium
d. Sarcolemma
e. Endomysium
Answer: a
The outer connective tissue covering of a muscle is the epimysium. Within the muscle, there are subdivisions called fascicles. The perimysium surrounds these muscle fascicles. The endomysium is the covering around an individual muscle fiber. The sarcolemma is the plasma membrane of a muscle cell. The sarcoplasm is the cytoplasm .of a muscle cell
.2
?What is myosin
a. Muscle fibers
b. Myofibrils
c. Myocardium
d. Myofilament
e. Muscle cell
Answer: d
Myofilaments are the contractile protein within a muscle cell. The myofilaments are actin and myosin. The thin filaments are actin and the thick filaments are myosin. The muscle cell is a muscle fiber. The term "muscle cell" and "muscle fiber" are synonymous. A myofibril is a longitudinal bundle of myofilaments within a muscle cell. Myocardium is .the muscular layer of the heart. Thus, the myocardium is composed of cardiac muscle

.3
?Where is cardiac muscle found
a. Myofilaments
b. Myosin
c. Muscle fibers
d. Myofibrils
e. Myocardium
Answer: e
Myofilaments are the contractile protein within a muscle cell. The myofilaments are actin and myosin. The thin filaments are actin and the thick filaments are myosin. The muscle cell is a muscle fiber. The term "muscle cell" and "muscle fiber" are synonymous. A myofibril is a longitudinal bundle of myofilaments within a muscle cell. Myocardium is .the muscular layer of the heart. Thus, the myocardium is composed of cardiac muscle
.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
Answer: d
Both skeletal muscle and cardiac muscle have visible striations. Collectively, skeletal ."muscle and cardiac muscle are classified as "striated muscle
.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
Answer: e
.The fundamental property of muscle tissue is that it is specialized for contraction
.6
?What is released at a synapse
a. Motor unit
b. Motor neuron
c. Motor end plate
d. Neuromuscular spindle
e. Neurotransmitter
Answer: e
A single motor neuron and the aggregation of muscle fibers innervated by that single neuron is called the motor unit. A motor neuron is a neuron which innervates a muscle cell. The point of contact where a neuron contacts a muscle is the motor end plate. A neuromuscular spindle is a receptor which is sensitive to stretching of the muscle. A .neurotransmitter is the chemical released by a nerve at a synapse

.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
Answer: a
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: a
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
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?What region is made of thin filaments
a. A band
b. I band
c. Z line
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Answer: b
The A band is the darker staining band. The I band is the light band. The I band is made of thin filaments. The Z line runs through the I band. The H band bisects the A band. .The M line runs through the H band

.A sarcomere is the segment that runs from Z line to Z 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
Answer: d
.On a cross section of a muscle, each thick filament is surrounded by 6 thin filaments

Histology Testbank: Muscle 3a

.1
?What is the plasma membrane of a muscle cell called
a. Endomysium
b. Sarcolemma
c. Sarcoplasm
d. Perimysium
e. Epimysium
Answer: b
The outer connective tissue covering of a muscle is the epimysium. Within the muscle, there are subdivisions called fascicles. The perimysium surrounds these muscle fascicles. The endomysium is the covering around an individual muscle fiber. The sarcolemma is the plasma membrane of a muscle cell. The sarcoplasm is the cytoplasm .of a muscle cell
?What are the thin filaments .2
a. Myocardium
b. Myofibrils
c. Myofilaments
d. Muscle fibers
e. Myosin
Answer: c
Myofilaments are the contractile protein within a muscle cell. The myofilaments are actin and myosin. The thin filaments are actin and the thick filaments are myosin. The muscle cell is a muscle fiber. The term "muscle cell" and "muscle fiber" are synonymous. A myofibril is a longitudinal bundle of myofilaments within a muscle cell. Myocardium is .the muscular layer of the heart. Thus, the myocardium is composed of cardiac muscle
.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

Answer: a
There are two chief categories of muscle: striated and non striated muscle (smooth .muscle)
Striated muscle can be sub-categorized into cardiac muscle and skeletal muscle. The tongue, biceps muscle, and upper esophagus are made of striated muscle. The heart is .composed of cardiac muscle
Non striated muscle is also called smooth muscle. Smooth muscle is involuntary muscle. .It is found in viscera and blood vessels
.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
Answer: c
.Smooth muscle is composed of spindle shaped cells
.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
Answer: a
Skeletal muscle is multinucleated. The nuclei are seen on the periphery. Occasionally, .cardiac muscle is bi-nucleated
.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
Answer: a
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: b
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: b
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: c
The A band is the darker staining band. The I band is the light band. The I band is made of thin filaments. The Z line runs through the I band. The H band bisects the A band. .The M line runs through the H band
.A sarcomere is the segment that runs from Z line to Z line
.10
?What is the name of the tissue which surrounds muscle fascicles

a. Perimysium
b. Periosteum
c. Perichondrium
d. Perineurium
e. Endosteum
Answer: a
.The perimysium is the connective tissue sheath which surrounds muscle fascicles
.The periosteum is the connective tissue covering of a bone
.The perichondrium is the connective tissue which surrounds cartilage
.The perineurium is the covering of nerve fascicles
The endosteum is the lining of the inner bone (the side which abuts the
.(medullary cavity
Note from Sarah Bellham: The prefix "peri" means around, such as in the word
,"perimeter". The prefix "endo" means within or inner, such as in "endosteum"
."endocrine", "endoscope"

Histology Testbank: Muscle 4a

.1
?What is the covering of an individual muscle fiber
a. Sarcoplasm
b. Perimysium
c. Endomysium
d. Epimysium
e. Sarcolemma
Answer: c
The outer connective tissue covering of a muscle is the epimysium. Within the muscle, there are subdivisions called fascicles. The perimysium surrounds these muscle fascicles. The endomysium is the covering around an individual muscle fiber. The sarcolemma is the plasma membrane of a muscle cell. The sarcoplasm is the cytoplasm
.of a muscle cell
.2
?What are the thick filaments composed of
a. Myofilaments
b. Myosin
c. Muscle fibers
d. Myofibrils
e. Myocardium
Answer: b
Myofilaments are the contractile protein within a muscle cell. The myofilaments are actin and myosin. The thin filaments are actin and the thick filaments are myosin. The muscle cell is a muscle fiber. The term "muscle cell" and "muscle fiber" are synonymous. A myofibril is a longitudinal bundle of myofilaments within a muscle cell. Myocardium is
.the muscular layer of the heart. Thus, the myocardium is composed of cardiac muscle
.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
Answer: c
There are two chief categories of muscle: striated and non striated muscle (smooth .muscle)
Striated muscle can be sub-categorized into cardiac muscle and skeletal muscle. The tongue, biceps muscle, and upper esophagus are made of striated muscle. The heart is .composed of cardiac muscle
Non striated muscle is also called smooth muscle. Smooth muscle is involuntary muscle. .It is found in viscera and blood vessels
.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
Answer: d
Skeletal muscle fibers are multinucleated. The nuclei are located on the periphery of the cell. In cardiac muscle, the nucleus is located centrally. In smooth muscle, there is also .a centrally placed nucleus
PEARL from Sarah Bellham: This is an important point, as both skeletal muscle and cardiac muscle are striated. The centrally placed nucleus seen in cardiac muscle is one .of the things that can be used to distinguish between the two
.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
A single motor neuron and the aggregation of muscle fibers innervated by that single neuron is called the motor unit. A motor neuron is a neuron which innervates a muscle cell. The point of contact where a neuron contacts a muscle is the motor end plate. A neuromuscular spindle is a receptor which is sensitive to stretching of the muscle. A .neurotransmitter is the chemical released by a nerve at a synapse
.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
Answer: a
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: b
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.8
?What is the dark band in muscle
a. A band
b. I band
c. Z line
d. H band
e. M line
Answer: a
The A band is the darker staining band. The I band is the light band. The I band is made of thin filaments. The Z line runs through the I band. The H band bisects the A band.
.The M line runs through the H band
.A sarcomere is the segment that runs from Z line to Z line
.9
What bisects the H band
a. A band
b. I band
c. Z line
d. E band

e. M line
Answer: e
The A band is the darker staining band. The I band is the light band. The I band is made of thin filaments. The Z line runs through the I band. The H band bisects the A band. .The M line runs through the H band
.A sarcomere is the segment that runs from Z line to Z 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
Answer: b
Intercalated discs are seen in cardiac muscle. Intercalated discs are specialized .junctions between cardiac cells

Histology Testbank: Muscle 5a
.1
?What is the cytoplasm of a muscle cell
a. Epimysium
b. Sarcolemma
c. Endomysium
d. Sarcoplasm
e. Perimysium
Answer: d
The outer connective tissue covering of a muscle is the epimysium. Within the muscle, there are subdivisions called fascicles. The perimysium surrounds these muscle fascicles. The endomysium is the covering around an individual muscle fiber. The sarcolemma is the plasma membrane of a muscle cell. The sarcoplasm is the cytoplasm .of a muscle cell
.2
?What is another term for muscle cells
a. Myofilaments
b. Myosin
c. Muscle fibers
d. Myofibrils
e. Myocardium
Answer: c
Myofilaments are the contractile protein within a muscle cell. The myofilaments are actin and myosin. The thin filaments are actin and the thick filaments are myosin. The muscle cell is a muscle fiber. The term "muscle cell" and "muscle fiber" are synonymous. A myofibril is a longitudinal bundle of myofilaments within a muscle cell. Myocardium is .the muscular layer of the heart. Thus, the myocardium is composed of cardiac muscle

.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
Answer: b
There are two chief categories of muscle: striated and non striated muscle (smooth .muscle)
Striated muscle can be sub-categorized into cardiac muscle and skeletal muscle. The tongue, biceps muscle, and upper esophagus are made of striated muscle. The heart is .composed of cardiac muscle
Non striated muscle is also called smooth muscle. Smooth muscle is involuntary muscle. .It is found in viscera and blood vessels
.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
Answer: e
.All types of muscle contain actin and myosin
.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
Answer: a
A single motor neuron and the aggregation of muscle fibers innervated by that single neuron is called the motor unit. A motor neuron is a neuron which innervates a muscle cell. The point of contact where a neuron contacts a muscle is the motor end plate. A neuromuscular spindle is a receptor which is sensitive to stretching of the muscle. A .neurotransmitter is the chemical released by a nerve at a synapse
.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

Answer: a
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.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
Answer: a
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.8
?What is the light band in muscle
a. A band
b. I band
c. Z line
d. H band
e. M line
Answer: b
The A band is the darker staining band. The I band is the light band. The I band is made of thin filaments. The Z line runs through the I band. The H band bisects the A band.
.The M line runs through the H band
.A sarcomere is the segment that runs from Z line to Z 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
Answer: d
Both skeletal muscle and cardiac muscle have sarcomeres. Smooth muscle has no .sarcomeres

.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
Answer: b
.Branching cells are seen in cardiac muscle
Histology hint from Sarah Bellham: This is an important point, as both skeletal muscle and cardiac muscle are striated. The branching seen with cardiac muscle is one of the .things that can be used to distinguish between the two

Histology Testbank: Muscle 6a

.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
Answer: e
Skeletal muscle fibers can be classified as red fibers, white fibers or intermediate fibers. Red fibers are smaller in diameter; white fibers are larger in diameter. Red fibers have more mitochondria than white fibers. Red fibers make up slow-twitch muscle; white fibers make up fast-twitch muscle. Red fibers are more resistant to fatigue than are white fibers. Red fibers have more myoglobin (oxygen binding pigment) than white .fibers. White fibers store glycogen and use anaerobic metabolism
.Red fiber and slow twitch muscle is for endurance
.White fiber and fast twitch muscle is for a burst of power
.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
Answer: c
The A band is the darker staining band. The I band is the light band. The I band is made of thin filaments. The Z line runs through the I band. The H band bisects the A band. .The M line runs through the H band
.A sarcomere is the segment that runs from Z line to Z 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
Answer: d
Myofilaments are the contractile protein within a muscle cell. The myofilaments are actin and myosin. The thin filaments are actin and the thick filaments are myosin. The muscle cell is a muscle fiber. The term "muscle cell" and "muscle fiber" are synonymous. A myofibril is a longitudinal bundle of myofilaments within a muscle cell. Myocardium is .the muscular layer of the heart. Thus, the myocardium is composed of cardiac muscle

Histology Testbank: Nervous System 1a
.1
?What are the supporting cells in the central nervous system called
a. Schwann cells
b. Basket cells
c. Ganglion
d. Neuroglia
e. Satellite cells
Answer: d
Schwann cells are responsible for the myelination of neurons in the peripheral nervous system. Basket cells are a type of neuron seen in the cerebellum. A ganglion is a collection of nerve cell bodies outside of the CNS. Neuroglia are the supporting cells in the central nervous system Sometimes, neuroglia called glial cells or glia. Satellite cells .are found in the ganglia of the peripheral nervous system
.2
?Which of the following is an element of the peripheral nervous system
a. Receptors
b. Brachial plexus
c. Ganglia
d. Sciatic nerve
e. All of the above

Answer: e
The central nervous system consists of the brain and spinal cord. All other nervous system elements are considered to be in the peripheral nervous system. Thus the peripheral nervous system includes receptors, the brachial plexus, the sciatic nerve, .and ganglia
.3
?What are most neurons in the body
a. Unipolar
b. Pseudounipolar
c. Bipolar
d. Multipolar
e. Both a and b
Answer: d
.Most neurons in the body (over 99%) are multipolar
Neurons can be classified based on the number of axons and dendrites stemming off of the cell body. A unipolar neuron has one process which branches off of it This process then immediately divides into two. Thus, a unipolar neuron is sometimes also called a .pseudounipolar neuron. Sensory neurons are unipolar
A bipolar neuron has two process that branch from it: an axon and a dendrite. Bipolar neurons are not very common and are found in some of the organs for special senses. Bipolar neurons are found in the retina, inner ear, and the region of the nose involved .with smell
Multipolar neurons have one axon and many (at least two) dendrites that branch off of .it. Most neurons are multipolar. Motor neurons and interneurons are multipolar
.4
?What is the cell body of a neuron called
a. Ganglion
b. Perikaryon
c. Astrocyte
d. Nissl
e. Terminal bouton
Answer: b
A ganglion is a collection of neuron cell bodies outside of the central nervous system. The cell body of a neuron is called a perikaryon or soma. An astrocyte is a supporting cell seen in the central nervous system. The basophilic clusters of ribosomes and rough endoplasmic seen in neuron cell bodies is called Nissl, Nissl bodies or Nissl substance. The terminal bouton is the end portion of an axon. It is also called an axon terminal or .end bulb. The terminal bouton will be associated with another neuron in a synapse
.5
?Which cell is a macrophage found in the central nervous system
a. Kupffer cells
b. Histiocyte
c. Dust cell
d. Langerhans cell
e. Microglia

Answer: e
Macrophages are mononuclear phagocytes. Many tissues have resident (fixed) macrophages. Fixed macrophages are given a unique name, depending on the tissue that they are located in. Kupffer cells are the hepatic macrophages. Histiocytes are macrophages seen in connective tissue. Dust cells are alveolar macrophage found in the respiratory tract. Langerhans cells are macrophages seen in the skin. Microglia are the .central nervous system macrophages
.6
?Which type of neuron is multipolar
a. Motor neurons
b. Interneurons
c. Sensory neurons
d. Both a and b
e. All of the above
Answer: d
.Both motor neurons and interneurons are multipolar
.7
?What provides tensile strength to a neuron
a. Meninges
b. Myelinated nerve fibers
c. Cell bodies
d. Nodes of Ranvier
e. Neurofilaments
Answer: e
The meninges are composed of the three connective tissue covers which surround the brain and spinal cord. White matter is myelinated nerve fibers. Gray matter is essentially neuron cell bodies and associated dendrites or unmyelinated axons. Nodes of Ranvier are the gaps that occur in the myelin sheath. Neurofilaments are a type of .intermediate filaments seen in neurons which provide rigidity and tensile strength
.8
?Which meninx is made of a delicate web like connective tissue
a. Dura mater
b. Arachnoid
c. Pia mater
d. Both a and b
e. All of the above
Answer: b
The meninges cover the brain and spinal cord. There are three: dura mater, arachnoid, .and pia mater
The dura mater is the outer meninx. The dura mater is composed of dense irregular .connective tissue
.The arachnoid is made of a delicate spider web like connective tissue
.The pia mater is the innermost meninx. It covers the brain intimately
Note from Sarah Bellham: Arachnoid is derived from the Greek word for spider. It is .used in the words arachnophobia, arachnids and arachnoid

.9
What are the conglomerations of gray matter deep within the cerebrum and cerebellum ?called
a. Tracts
b. Islets
c. Soma
d. Cortex
e. Nuclei
Answer: e
A group of fibers traveling together to a destination is a tract. Islets of Langerhans are seen in the pancreas. Soma is another term for a neuron cell body. The outer part of the brain is gray matter called the cortex. The conglomerations of gray matter deep within .the cerebrum and cerebellum are called nuclei
.10
?Which of the following is involved in the blood brain barrier
a. Astrocytes
b. Ependymal cells
c. Oligodendrocytes
d. Microglia
e. Schwann cells
Answer: a
Neuroglia are the supporting cells of the central nervous system. Sometimes, neuroglia called glial cells or glia. Astrocytes, ependymal cells, oligodendrocytes, and microglia .are all neuroglia
Of the neuroglia cells, astrocytes are the most abundant and the largest. These are star .shaped cells involved in the blood brain barrier
.Ependymal cells line the ventricles and spinal canal
.Oligodendrocytes form myelin in the central nervous system
.Microglia are the central nervous system macrophages
Schwann cells are seen in the peripheral nervous system and are not considered neuroglia. Schwann cells are responsible for the myelination of neurons in the .peripheral nervous system

Histology Testbank: Nervous System 2a
.1
?Which of the following forms myelin in the peripheral nervous system
a. Schwann cells
b. Basket cells
c. Ganglion
d. Neuroglia
e. Satellite cells
Answer: a
Schwann cells are responsible for the myelination of neurons in the peripheral nervous system. Basket cells are a type of neuron seen in the cerebellum. A ganglion is a

collection of nerve cell bodies outside of the CNS. Neuroglia are the supporting cells in the central nervous system Sometimes, neuroglia called glial cells or glia. Satellite cells .are found in the ganglia of the peripheral nervous system

.2

?Which of the following is an element of the central nervous system

a. Receptors

b. Brachial plexus

c. Sciatic nerve

d. Ganglia

e. Spinal cord

Answer: e

The central nervous system consists of the brain and spinal cord. All other nervous system elements are considered to be in the peripheral nervous system. Thus the peripheral nervous system includes receptors, the brachial plexus, the sciatic nerve, .and ganglia

.3

?What are motor neurons

a. Unipolar

b. Pseudounipolar

c. Bipolar

d. Multipolar

e. Both a and b

Answer: d

.Motor neurons are multipolar

Neurons can be classified based on the number of axons and dendrites stemming off of the cell body. A unipolar neuron has one process which branches off of it This process then immediately divides into two. Thus, a unipolar neuron is sometimes also called a .pseudounipolar neuron. Sensory neurons are unipolar

A bipolar neuron has two process that branch from it: an axon and a dendrite. Bipolar neurons are not very common and are found in some of the organs for special senses. Bipolar neurons are found in the retina, inner ear, and the region of the nose involved .with smell

Multipolar neurons have one axon and many (at least two) dendrites that branch off of .it. Most neurons are multipolar. Motor neurons and interneurons are multipolar

.4

?What is a collection of cell bodies outside the CNS called

a. Ganglion

b. Perikaryon

c. Astrocyte

d. Nissl

e. Terminal bouton

Answer: a

A ganglion is a collection of neuron cell bodies outside of the central nervous system. The cell body of a neuron is called a perikaryon or soma. An astrocyte is a supporting cell seen in the central nervous system. The basophilic clusters of ribosomes and rough

endoplasmic seen in neuron cell bodies is called Nissl, Nissl bodies or Nissl substance. The terminal bouton is the end portion of an axon. It is also called an axon terminal or .end bulb. The terminal bouton will be associated with another neuron in a synapse
.5
?What is tissue which surrounds a nerve fascicle
a. Perimysium
b. Periosteum
c. Perichondrium
d. Perineurium
e. Endosteum
Answer: d
.The perimysium is the connective tissue sheath around fascicles of muscle
.The periosteum is the connective tissue covering of a bone
.The perichondrium is the connective tissue which surrounds cartilage
.The perineurium is the covering of nerve fascicles
The endosteum is the lining of the inner bone (the side which abuts the medullary .cavity)
Note from Sarah Bellham: The prefix "peri" means around, such as in the word "perimeter". The prefix "endo" means within or inner, such as in "endosteum", .""endocrine", "endoscope
.6
The colloquialism "gray matter" refers to somebody using his intellect or reasoning ?ability. In reality, what is gray matter
a. Meninges
b. Myelinated nerve fibers
c. Cell bodies
d. Nodes of Ranvier
e. Neurofilaments
Answer: c
A ganglion is a collection of nerve cell bodies outside of the central nervous system. White matter is myelinated nerve fibers. Gray matter is essentially neuron cell bodies. Nodes of Ranvier are the gaps that occur in the myelin sheath. Neurofilaments are a .type of intermediate filaments seen in neurons
.7
?Where is the cerebrospinal fluid
a. Between the dura mater and bone
b. Subdural space
c. Subarachnoid space
d. Between the pia mater and brain
e. None of the above
Answer: c
The cerebrospinal fluid is found in the subarachnoid space. The subarachnoid space is .the space between the arachnoid and the pia mater
.8
?Which of the following are considered to be part of the meninges

a. Dura mater
b. Arachnoid
c. Pia mater
d. Both a and c
e. All of the above
Answer: e
The meninges cover the brain and spinal cord. There are three: dura mater, arachnoid, .and pia mater
The dura mater is the outer meninx. The dura mater is composed of dense irregular .connective tissue
.The arachnoid is made of a delicate spider web like connective tissue
.The pia mater is the innermost meninx. It covers the brain intimately
Note from Sarah Bellham: Arachnoid is derived from the Greek word for spider. It is .used in the words arachnophobia, arachnids and arachnoid
.9
?What is the outer gray matter of the brain called
a. Tracts
b. Islets
c. Soma
d. Cortex
e. Nuclei
Answer: d
A group of fibers traveling together to a destination is a tract. Islets of Langerhans are seen in the pancreas. Soma is another term for a neuron cell body. The outer part of the brain is gray matter called the cortex. The conglomerations of gray matter deep within .the cerebrum and cerebellum are called nuclei
.10
?Which of the following is the most abundant neuroglia cell
a. Astrocytes
b. Ependymal cells
c. Oligodendrocytes
d. Microglia
e. Schwann cells
Answer: a
Neuroglia are the supporting cells of the central nervous system. Sometimes, neuroglia called glial cells or glia. Astrocytes, ependymal cells, oligodendrocytes, and microglia .are all neuroglia
Of the neuroglia cells, astrocytes are the most abundant and the largest. These are star .shaped cells involved in the blood brain barrier
.Ependymal cells line the ventricles and spinal canal
.Oligodendrocytes form myelin in the central nervous system
.Microglia are the central nervous system macrophages
Schwann cells are seen in the peripheral nervous system and are not considered neuroglia. Schwann cells are responsible for the myelination of neurons in the .peripheral nervous system

Histology Testbank: Nervous System 3a

.1

?Which of the following is a supporting cell found in the ganglia

a. Schwann cells

b. Basket cells

c. Ganglion

d. Neuroglia

e. Satellite cells

Answer: e

Schwann cells are responsible for the myelination of neurons in the peripheral nervous system. Basket cells are a type of neuron seen in the cerebellum. A ganglion is a collection of nerve cell bodies outside of the CNS. Neuroglia are the supporting cells in the central nervous system Sometimes, neuroglia called glial cells or glia. Satellite cells .are found in the ganglia of the peripheral nervous system

.2

?Which of the following is an element of the central nervous system

a. Receptors

b. Brachial plexus

c. Brain

d. Ganglia

e. Sciatic nerve

Answer: c

The central nervous system consists of the brain and spinal cord. All other nervous system elements are considered to be in the peripheral nervous system. Thus the peripheral nervous system includes receptors, the brachial plexus, the sciatic nerve, .and ganglia

.3

?What are interneurons

a. Unipolar

b. Pseudounipolar

c. Bipolar

d. Multipolar

e. Both a and b

Answer: d

.Interneurons are multipolar

Neurons can be classified based on the number of axons and dendrites stemming off of the cell body. A unipolar neuron has one process which branches off of it This process then immediately divides into two. Thus, a unipolar neuron is sometimes also called a .pseudounipolar neuron. Sensory neurons are unipolar

A bipolar neuron has two process that branch from it: an axon and a dendrite. Bipolar neurons are not very common and are found in some of the organs for special senses. Bipolar neurons are found in the retina, inner ear, and the region of the nose involved .with smell

Multipolar neurons have one axon and many (at least two) dendrites that branch off of .it. Most neurons are multipolar. Motor neurons and interneurons are multipolar
.4
?Which of the following is supporting cell of the central nervous system
a. Ganglion
b. Perikaryon
c. Astrocyte
d. Nissl
e. Terminal bouton
Answer: c
A ganglion is a collection of neuron cell bodies outside of the central nervous system. The cell body of a neuron is called a perikaryon or soma. An astrocyte is a supporting cell seen in the central nervous system. The basophilic clusters of ribosomes and rough endoplasmic seen in neuron cell bodies is called Nissl, Nissl bodies or Nissl substance. The terminal bouton is the end portion of an axon. It is also called an axon terminal or .end bulb. The terminal bouton will be associated with another neuron in a synapse
.5
?How many neurons are in the body of man
a. 10,000 (10 to the 4th)
b. 10,000,000 (10 to the 7th)
c. 10,000,000,000 (10 to the 10th)
d. 10,000,000,000,000 (10 to the 13th)
e. 10,000,000,000,000,000 (10 to the 16th
Answer: c
.There are 10,000,000,000 (10 to the 10th) to 100,000,000,000 (10 to the 11th) neurons
.6
?What are the gaps that occur within the myelin sheath
a. Meninges
b. Myelinated nerve fibers
c. Cell bodies
d. Nodes of Ranvier
e. Neurofilaments
Answer: d
A ganglion is a collection of nerve cell bodies outside of the central nervous system. White matter is myelinated nerve fibers. Gray matter is essentially neuron cell bodies. Nodes of Ranvier are the gaps that occur in the myelin sheath. Neurofilaments are a .type of intermediate filaments seen in neurons
.7
?What is the dura mater composed of
a. Loose irregular connective tissue
b. Dense irregular connective tissue
c. Dense regular connective tissue
d. Simple squamous epithelium
e. Nervous tissue
Answer: b

The meninges cover the brain and spinal cord. The dura mater is the outer meninx. The .dura mater is composed of dense irregular connective tissue

.8

?Where is gray matter

a. Outer surface of the cerebrum and cerebellum

b. Outer surface of the spinal cord

c. Inner portion of the spinal cord

d. Both a and b

e. Both a and c

Answer: e

The outer part of the cerebrum and cerebellum is gray matter. It is called the cortex. Underneath the cortex, is white matter. Gray matter is also found in conglomerations .within the cerebrum and cerebellum where it is called nuclei

Gray matter is found in the central portion of the spinal cord in a butterfly shape. White .matter is on the outer portion of the spinal cord

Note from Sarah Bellham: Notice that the distribution of gray matter and white matter for the brain and spinal cord is the reverse of each other. On the cerebrum and cerebellum, gray matter is on the outer portion, white matter is deeper. For the spinal .cord, white matter is on the outer portion, and gray matter is deeper

.9

?What surrounds a nerve

a. Neurium

b. Perineurium

c. Epineurium

d. Endoneurium

e. None of the above

Answer: c

The endoneurium surrounds a nerve fiber. The perineurium surrounds a bundle of nerve .fibers. The epineurium surrounds a nerve

.10

?Which of the following lines the ventricles

a. Astrocytes

b. Ependymal cells

c. Oligodendrocytes

d. Microglia

e. Schwann cells

Answer: b

Neuroglia are the supporting cells of the central nervous system. Sometimes, neuroglia called glial cells or glia. Astrocytes, ependymal cells, oligodendrocytes, and microglia .are all neuroglia

Of the neuroglia cells, astrocytes are the most abundant and the largest. These are star .shaped cells involved in the blood brain barrier

.Ependymal cells line the ventricles and spinal canal

.Oligodendrocytes form myelin in the central nervous system

.Microglia are the central nervous system macrophages

Schwann cells are seen in the peripheral nervous system and are not considered neuroglia. Schwann cells are responsible for the myelination of neurons in the .peripheral nervous system

Histology Testbank: Nervous System 4a

.1

?What is a collection of nerve cell bodies outside of the central nervous system called

a. Schwann cells

b. Basket cells

c. Ganglion

d. Neuroglia

e. Satellite cells

Answer: c

Schwann cells are responsible for the myelination of neurons in the peripheral nervous system. Basket cells are a type of neuron seen in the cerebellum. A ganglion is a collection of nerve cell bodies outside of the CNS. Neuroglia are the supporting cells in the central nervous system Sometimes, neuroglia called glial cells or glia. Satellite cells .are found in the ganglia of the peripheral nervous system

.2

?What percentage of neurons are interneurons

a. 0.1%

b. 1%

c. 20%

d. 80%

e. 99.9%

Answer: e

Interneurons are the neurons between the sensory and motor neurons. 99.9% of all .neurons are interneurons

.3

?What are sensory neurons

a. Unipolar

b. Pseudounipolar

c. Bipolar

d. Multipolar

e. Both a and b

Answer: e

Sensory neurons are unipolar. Unipolar neurons are sometimes also called .pseudounipolar

Neurons can be classified based on the number of axons and dendrites stemming off of the cell body. A unipolar neuron has one process which branches off of it This process then immediately divides into two. Thus, a unipolar neuron is sometimes also called a .pseudounipolar neuron. Sensory neurons are unipolar

A bipolar neuron has two process that branch from it: an axon and a dendrite. Bipolar neurons are not very common and are found in some of the organs for special senses.

Bipolar neurons are found in the retina, inner ear, and the region of the nose involved .with smell
Multipolar neurons have one axon and many (at least two) dendrites that branch off of .it. Most neurons are multipolar. Motor neurons and interneurons are multipolar
.4
?What is the end of an axon called
a. Ganglion
b. Perikaryon
c. Astrocyte
d. Nissl
e. Terminal bouton
Answer: e
A ganglion is a collection of neuron cell bodies outside of the central nervous system. The cell body of a neuron is called a perikaryon or soma. An astrocyte is a supporting cell seen in the central nervous system. The basophilic clusters of ribosomes and rough endoplasmic seen in neuron cell bodies is called Nissl, Nissl bodies or Nissl substance. The terminal bouton is the end portion of an axon. It is also called an axon terminal or .end bulb. The terminal bouton will be associated with another neuron in a synapse
.5
?What is the connective tissue covering around the brain and spinal cord
a. Meninges
b. Myelinated nerve fibers
c. Cell bodies
d. Nodes of Ranvier
e. Neurofilaments
Answer: a
A ganglion is a collection of nerve cell bodies outside of the central nervous system. White matter is myelinated nerve fibers. Gray matter is essentially neuron cell bodies. Nodes of Ranvier are the gaps that occur in the myelin sheath. Neurofilaments are a .type of intermediate filaments seen in neurons
.6
?Which meninx is made of a dense irregular connective tissue
a. Dura mater
b. Arachnoid
c. Pia mater
d. Both a and b
e. All of the above
Answer: a
The meninges cover the brain and spinal cord. There are three: dura mater, arachnoid, .and pia mater
The dura mater is the outer meninx. The dura mater is composed of dense irregular .connective tissue
.The arachnoid is made of a delicate spider web like connective tissue
.The pia mater is the innermost meninx. It covers the brain intimately
Note from Sarah Bellham: Arachnoid is derived from the Greek word for spider. It is

.used in the words arachnophobia, arachnids and arachnoid
.7
?What is a group of fibers traveling together
a. Tracts
b. Islets
c. Soma
d. Cortex
e. Nuclei
Answer: a
A group of fibers traveling together to a destination is a tract. Islets of Langerhans are seen in the pancreas. Soma is another term for a neuron cell body. The outer part of the brain is gray matter called the cortex. The conglomerations of gray matter deep within .the cerebrum and cerebellum are called nuclei
.8
?Where is white matter
a. Outer surface of the cerebrum and cerebellum
b. Outer surface of the spinal cord
c. Inner portion of the brain
d. Both a and b
e. Both b and c
Answer: e
The outer part of the cerebrum and cerebellum is gray matter. It is called the cortex. Underneath the cortex, is white matter. Gray matter is also found in conglomerations .within the cerebrum and cerebellum where it is called nuclei
Gray matter is found in the central portion of the spinal cord in a butterfly shape. White .matter is on the outer portion of the spinal cord
Note from Sarah Bellham: Notice that the distribution of gray matter and white matter for the brain and spinal cord is the reverse of each other. On the cerebrum and cerebellum, gray matter is on the outer portion, white matter is deeper. For the spinal .cord, white matter is on the outer portion, and gray matter is deeper
.9
?Which of the following forms myelin in the central nervous system
a. Astrocytes
b. Ependymal cells
c. Oligodendrocytes
d. Microglia
e. Schwann cells
Answer: c
Neuroglia are the supporting cells of the central nervous system. Sometimes, neuroglia called glial cells or glia. Astrocytes, ependymal cells, oligodendrocytes, and microglia .are all neuroglia
Of the neuroglia cells, astrocytes are the most abundant and the largest. These are star .shaped cells involved in the blood brain barrier
.Ependymal cells line the ventricles and spinal canal
.Oligodendrocytes form myelin in the central nervous system

.Microglia are the central nervous system macrophages
Schwann cells are seen in the peripheral nervous system and are not considered neuroglia. Schwann cells are responsible for the myelination of neurons in the .peripheral nervous system
.10
?What is the primary component of myelin
a. Amino acids
b. Protein
c. Carbohydrate
d. Lipid
e. Both b and c
Answer: d
The primary component of myelin is lipid. It is formed by the cell wrapping itself around the axon. Thus, it is primarily the plasma membrane of either the Schwann cells or the .oligodendrocytes

Histology Testbank: Nervous System 5a
.1
?Which of the following is found in the cerebellum
a. Schwann cells
b. Basket cells
c. Ganglion
d. Neuroglia
e. Satellite cells
Answer: b
Schwann cells are responsible for the myelination of neurons in the peripheral nervous system. Basket cells are a type of neuron seen in the cerebellum. A ganglion is a collection of nerve cell bodies outside of the CNS. Neuroglia are the supporting cells in the central nervous system Sometimes, neuroglia called glial cells or glia. Satellite cells .are found in the ganglia of the peripheral nervous system
.2
?What are neurons in the retina
a. Unipolar
b. Pseudounipolar
c. Bipolar
d. Multipolar
e. Both a and b
Answer: c
.The neurons in the retina are bipolar
Neurons can be classified based on the number of axons and dendrites stemming off of the cell body. A unipolar neuron has one process which branches off of it This process then immediately divides into two. Thus, a unipolar neuron is sometimes also called a .pseudounipolar neuron. Sensory neurons are unipolar
A bipolar neuron has two process that branch from it: an axon and a dendrite. Bipolar

neurons are not very common and are found in some of the organs for special senses. Bipolar neurons are found in the retina, inner ear, and the region of the nose involved .with smell

Multipolar neurons have one axon and many (at least two) dendrites that branch off of .it. Most neurons are multipolar. Motor neurons and interneurons are multipolar

.3

What are the basophilic clusters of ribosomes and rough endoplasmic reticulum seen in ?neurons called

a. Ganglion

b. Perikaryon

c. Astrocyte

d. Nissl

e. Terminal bouton

Answer: d

A ganglion is a collection of neuron cell bodies outside of the central nervous system. The cell body of a neuron is called a perikaryon or soma. An astrocyte is a supporting cell seen in the central nervous system. The basophilic clusters of ribosomes and rough endoplasmic seen in neuron cell bodies is called Nissl, Nissl bodies or Nissl substance. The terminal bouton is the end portion of an axon. It is also called an axon terminal or .end bulb. The terminal bouton will be associated with another neuron in a synapse

.4

:All of the following are properties of neurons, except

a. High metabolic rate

b. Longevity

c. Specialized for conduction

d. High mitotic rate

e. Limited ability for oxygen deprivation

Answer: d

.Neurons do not divide; therefore they do not have a high mitotic rate

Neurons have a high metabolic rate. They are unable to survive long without oxygen. They have an extremely long longevity, lasting a lifetime. Neurons are specialize for .conduction. They send signals via a nervous impulse

.5

?Which type of neuron is also called an internuncial neuron

a. Sensory neurons

b. Motor neurons

c. Interneurons

d. Both a and b

e. All of the above

Answer: c

.Interneurons are also called internuncial neurons

.6

?What is white matter

a. Meninges

b. Myelinated nerve fibers

c. Cell bodies
d. Nodes of Ranvier
e. Neurofilaments
Answer: b
A ganglion is a collection of nerve cell bodies outside of the central nervous system. White matter is myelinated nerve fibers. Gray matter is essentially neuron cell bodies. Nodes of Ranvier are the gaps that occur in the myelin sheath. Neurofilaments are a .type of intermediate filaments seen in neurons
.7
?What is another term for the cell body of a neuron
a. Tracts
b. Islets
c. Soma
d. Cortex
e. Nuclei
Answer: c
A group of fibers traveling together to a destination is a tract. Islets of Langerhans are seen in the pancreas. Soma is another term for a neuron cell body. The outer part of the brain is gray matter called the cortex. The conglomerations of gray matter deep within .the cerebrum and cerebellum are called nuclei
.8
?What is the covering of a nerve fiber
a. Neurium
b. Perineurium
c. Epineurium
d. Endoneurium
e. None of the above
Answer: d
The endoneurium surrounds a nerve fiber. The perineurium surrounds a bundle of .nerve fibers. The epineurium surrounds a nerve

.9
?Which of the following is the CNS macrophage
a. Astrocytes
b. Ependymal cells
c. Oligodendrocytes
d. Microglia
e. Schwann cells
Answer: d
Neuroglia are the supporting cells of the central nervous system. Sometimes, neuroglia called glial cells or glia. Astrocytes, ependymal cells, oligodendrocytes, and microglia .are all neuroglia
Of the neuroglia cells, astrocytes are the most abundant and the largest. These are star .shaped cells involved in the blood brain barrier
.Ependymal cells line the ventricles and spinal canal

.Oligodendrocytes form myelin in the central nervous system
.Microglia are the central nervous system macrophages
Schwann cells are seen in the peripheral nervous system and are not considered neuroglia. Schwann cells are responsible for the myelination of neurons in the .peripheral nervous system
.10
?Which of the following is found in the peripheral nervous system
a. Astrocytes
b. Ependymal cells
c. Oligodendrocytes
d. Microglia
e. Schwann cells
Answer: e
Neuroglia are the supporting cells of the central nervous system. Sometimes, neuroglia called glial cells or glia. Astrocytes, ependymal cells, oligodendrocytes, and microglia .are all neuroglia
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Schwann cells are seen in the peripheral nervous system and are not considered neuroglia. Schwann cells are responsible for the myelination of neurons in the .peripheral nervous system

Histology Testbank: Nervous System 6a

.1
?What is the cell body of a neuron called
a. Ganglion
b. Soma
c. Astrocyte
d. Nissl
e. Terminal bouton
Answer: b
A ganglion is a collection of neuron cell bodies outside of the central nervous system. The cell body of a neuron is called a perikaryon or soma. An astrocyte is a supporting cell seen in the central nervous system. The basophilic clusters of ribosomes and rough endoplasmic seen in neuron cell bodies is called Nissl, Nissl bodies or Nissl substance. The terminal bouton is the end portion of an axon. It is also called an axon terminal or .end bulb. The terminal bouton will be > associated with another neuron in a synapse
.2
?Where is the ependyma found
a. Lining ventricles
b. Lining spinal canal

c. Covering the brain
d. Covering the spinal cord
e. Both a and b
Answer: e
.The ependyma lines the ventricles and spinal canal
.3
?Which type of neuron is most abundant
a. Sensory neurons
b. Motor neurons
c. Interneurons
d. Both a and b
e. All of the above
Answer: c
.The vast majority of neurons are interneurons
.4
?What surrounds a bundle of nerve fibers
a. Neurium
b. Perineurium
c. Epineurium
d. Endoneurium
e. None of the above
Answer: b
The endoneurium surrounds a nerve fiber. The perineurium surrounds a bundle of nerve
.fibers. The epineurium surrounds a nerve
.5
?Which meninx covers the brain intimately
a. Dura mater
b. Arachnoid
c. Pia mater
d. Both a and b
e. All of the above
Answer: c
The meninges cover the brain and spinal cord. There are three: dura mater, arachnoid,
.and pia mater
The dura mater is the outer meninx. The dura mater is composed of dense irregular
.connective tissue
.The arachnoid is made of a delicate spider web like connective tissue
.The pia mater is the innermost meninx. It covers the brain intimately
Note from Sarah Bellham: Arachnoid is derived from the Greek word for spider. It is
.used in the words arachnophobia, arachnids and arachnoid
.6
?Which of the following is the largest neuroglia cell
a. Astrocytes
b. Ependymal cells
c. Oligodendrocytes

d. Microglia
e. Schwann cells
Answer: a
Neuroglia are the supporting cells of the central nervous system. Sometimes, neuroglia called glial cells or glia. Astrocytes, ependymal cells, oligodendrocytes, and microglia .are all neuroglia
Of the neuroglia cells, astrocytes are the most abundant and the largest. These are star .shaped cells involved in the blood brain barrier
.Ependymal cells line the ventricles and spinal canal
.Oligodendrocytes form myelin in the central nervous system
.Microglia are the central nervous system macrophages
Schwann cells are seen in the peripheral nervous system and are not considered neuroglia. Schwann cells are responsible for the myelination of neurons in the .peripheral nervous system
.7
?Which of the following is NOT considered neuroglia
a. Astrocytes
b. Ependymal cells
c. Oligodendrocytes
d. Microglia
e. Schwann cells
Answer: e
Neuroglia are the supporting cells of the central nervous system. Sometimes, neuroglia called glial cells or glia. Astrocytes, ependymal cells, oligodendrocytes, and microglia .are all neuroglia
Of the neuroglia cells, astrocytes are the most abundant and the largest. These are star .shaped cells involved in the blood brain barrier
.Ependymal cells line the ventricles and spinal canal
.Oligodendrocytes form myelin in the central nervous system
.Microglia are the central nervous system macrophages
Schwann cells are seen in the peripheral nervous system and are not considered neuroglia. Schwann cells are responsible for the myelination of neurons in the .peripheral nervous system
.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
Answer: b
Eccrine sweat glands are innervated by the sympathetic nervous system. The .neurotransmitter for the eccrine sweat glands is acetylcholine. Thus it is cholinergic
Note from Sarah Bellham: For most postganglionic sympathetic neurons, the neurotransmitter is norepinephrine. Eccrine sweat glands are an exception to this

.generalization, as the innervation for eccrine sweat glands is cholinergic sympathetic
.9
?What is the innervation of an apocrine sweat gland
a. Cholinergic; parasympathetic
b. Cholinergic; sympathetic
c. Adrenergic; parasympathetic
d. Adrenergic; sympathetic
e. Cholinergic; motor
Answer: d
Apocrine sweat glands are innervated by the sympathetic nervous system. The
.neurotransmitter for the apocrine sweat glands is norepinephrine. Thus it is adrenergic

Histology Testbank: Vessels 1a

.1
?At what level of the vascular tree does gas exchange occur
a. Capillary
b. Arteriole
c. Venule
d. Elastic artery
e. Muscular artery
Answer: a
Capillaries are very thin walled in order to easily allow the exchange of gases. Gaseous
.exchange between the blood and tissues occurs at the level of the capillaries
Arterioles are small branches of arteries with only one or two layers of smooth muscle in the tunica media. Arterioles regulate the amount of blood going into the capillary
.bed
.Venules are small branches of veins
Elastic arteries are the arteries leaving the heart and the major branches. The aorta is
.an elastic artery
Most of the named arteries are muscular arteries (with the exception of the aorta and the major branches off the aorta). The dividing line between elastic arteries and muscular arteries is not clear cut. However, a pronounced internal elastic membrane
.and external elastic membrane are distinguishing characteristics of muscular arteries
Histology hint from Sarah Bellham: Elastic arteries also have an internal elastic membrane. However, there is so much elastic material in the tunica intima of an elastic
.artery, that a single, discrete internal elastic membrane is not visible
.2
?Which layer in an artery is primarily skeletal muscle

a. Tunica intima
b. Tunica media
c. Tunica externa
d. All of the above
e. None of the above
Answer: e
The tunica intima is the innermost layer of a blood vessel. It is lined by endothelium
The tunica media is the middle layer of a blood vessel. The tunica media is primarily
.smooth muscle
The tunica externa or tunica adventitia is the outer layer of a blood vessel. In large
vessels, the tunica adventitia contains vasa vasorum (blood vessels) and nervi vascularis
.(nerves)
.3
Which of the following is NOT a distinguishing feature between larger veins and
?arteries
a. Veins have valves whereas arteries do not have valves
b. The tunics in veins are not as clearly delimited as are the tunics in arteries
c. The walls in veins are thinner than the walls in arteries
d. The lumen of a vein is smaller than the lumen of an artery
e. None. All of the above are true
Answer: d
Veins have valves whereas arteries do not have valves. The tunics in veins are
not as clearly delimited as are the tunics in arteries. The walls in veins are
thinner than the walls in arteries. The lumen of a vein is larger than the lumen of
.an artery
.4
?In which structure are things moved across the epithelium via pinocytotic vesicles
a. Continuous capillaries
b. Fenestrated capillaries
c. Sinusoidal capillaries
d. AV anastomoses
e. Venous sinus
Answer: a
A characteristic of continuous capillaries is that things are transported across the
.epithelium via pinocytotic vesicles
.A characteristic of fenestrated capillaries is the presence of pores or fenestrae
Sinusoidal capillaries (sinusoids) are wide leaky capillaries. They are found in the liver,
.spleen, and bone marrow
An arteriovenous anastomoses (AV anastomoses or AV shunt) is a direct route between
.arteries and veins. It bypasses the capillary bed
A venous sinus is a venous space lined by endothelium. A venous sinus surrounding the
.brain exists which is called the dural sinus
.5
?What is a thoroughfare which is a an intermediate between an arteriole and capillary
a. Metcapillary

b. Metartery
c. Metvenule
d. Metarteriole
e. None of the above
A metarteriole is a thoroughfare that can be considered an intermediate between an .arteriole and capillary is a metarteriole
.6
?Which layer in an artery contains the endothelium
a. Tunica intima
b. Tunica media
c. Tunica externa
d. All of the above
e. None of the above
Answer: a
The tunica intima is the innermost layer of a blood vessel. It is lined by endothelium
The tunica media is the middle layer of a blood vessel. The tunica media is primarily .smooth muscle
The tunica externa or tunica adventitia is the outer layer of a blood vessel. In large vessels, the tunica adventitia contains vasa vasorum (blood vessels) and nervi vascularis .(nerves)
.7
?What do you call the simple squamous epithelium that lines the blood vessels
a. Epithelioid tissue
b. Mesothelium
c. Endothelium
d. Transitional
e. Pseudostratified
Answer: c
Epithelial tissue has cells that are very tightly packed together. There is always a free surface associated with epithelial tissue. If a tissue is composed of a conglomeration of cells in tightly packed together, but it does not have a free surface, the tissue is called epithelioid tissue. An example of epithelioid tissue is the parenchyma of the adrenal .gland
Mesothelium is simple squamous epithelium that lines the abdominal cavity, the .pericardial cavity, and the thoracic cavity
.Endothelium is simple squamous epithelium that lines the vascular system
Transitional epithelium is seen in the urinary tract. Transitional epithelium has dome .shaped cells on the apical surface
Pseudostratified epithelium is a type of epithelium that has cells which all touch the basement membrane. Pseudostratified epithelium is only one cell layer thick. Pseudostratified epithelium appears stratified, but it is not really stratified. Thus the .name. The prefix "pseudo" means false, such as pseudonym or pseudo-science
.8
?In which of the following is a portal system NOT found
a. Kidney

b. Liver
c. Muscle
d. Brain
e. None of the above is correct; a portal system is found in all of the above
Answer: c
The normal flow of blood is as follows: artery - arteriole - capillary - post capillary .venule -vein. However, exceptions to this pattern of blood flow exist
The phenomenon when a vein is between two capillary beds is called a venous portal system. An example of this is the hepatic portal system. Another example of a venous .portal system is seen in the brain between the hypothalamus and pituitary
The phenomenon when an arteriole is between two capillary beds is called an arterial .portal system. This is seen in the kidney
.9
?What is the brachial artery
a. Capillary
b. Arteriole
c. Venule
d. Elastic artery
e. Muscular artery
Answer: e
Capillaries are very thin walled in order to easily allow the exchange of gases. Gaseous .exchange between the blood and tissues occurs at the level of the capillaries
Arterioles are small branches of arteries with only one or two layers of smooth muscle in the tunica media. Arterioles regulate the amount of blood going into the capillary .bed
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Histology hint from Sarah Bellham: Elastic arteries also have an internal elastic membrane. However, there is so much elastic material in the tunica intima of an elastic .artery, that a single, discrete internal elastic membrane is not visible
.10
Which of the following is a distinct structure found specifically in the liver, spleen, and ?bone marrow
a. Continuous capillaries
b. Fenestrated capillaries
c. Sinusoidal capillaries
d. AV anastomoses
e. Venous sinus
Answer: c
A characteristic of continuous capillaries is that things are transported across the

.epithelium via pinocytotic vesicles
.A characteristic of fenestrated capillaries is the presence of pores or fenestrae
Sinusoidal capillaries (sinusoids) are wide leaky capillaries. They are found in the liver, .spleen, and bone marrow
An arteriovenous anastomoses (AV anastomoses or AV shunt) is a direct route between .arteries and veins. It bypasses the capillary bed
A venous sinus is a venous space lined by endothelium. A venous sinus surrounding the .brain exists which is called the dural sinus

Histology Testbank: Vessels 2a

.1
?Which layer in an artery is primarily smooth muscle
a. Tunica intima
b. Tunica media
c. Tunica externa
d. All of the above
e. None of the above
Answer: b
The tunica intima is the innermost layer of a blood vessel. It is lined by endothelium
The tunica media is the middle layer of a blood vessel. The tunica media is primarily .smooth muscle
The tunica externa or tunica adventitia is the outer layer of a blood vessel. In large vessels, the tunica adventitia contains vasa vasorum (blood vessels) and nervi vascularis .(nerves)

.2
A pronounced internal elastic membrane and external elastic membrane are ?distinguishing characteristics of which type of vessel
a. Capillary
b. Arteriole
c. Venule
d. Elastic artery
e. Muscular artery
Answer: e
Capillaries are very thin walled in order to easily allow the exchange of gases. Gaseous .exchange between the blood and tissues occurs at the level of the capillaries
Arterioles are small branches of arteries with only one or two layers of smooth muscle in the tunica media. Arterioles regulate the amount of blood going into the capillary .bed
.Venules are small branches of veins
Elastic arteries are the arteries leaving the heart and the major branches. The aorta is .an elastic artery
Most of the named arteries are muscular arteries (with the exception of the aorta and the major branches off the aorta). The dividing line between elastic arteries and muscular arteries is not clear cut. However, a pronounced internal elastic membrane

.and external elastic membrane are distinguishing characteristics of muscular arteries
Histology hint from Sarah Bellham: Elastic arteries also have an internal elastic membrane. However, there is so much elastic material in the tunica intima of an elastic .artery, that a single, discrete internal elastic membrane is not visible
.3
?Which of the following constitutes the microvascular bed of a tissue
a. Capillaries
b. Capillaries and arterioles
c. Capillaries, arterioles, and post capillary venules
d. Capillaries, arterioles, post capillary venules, and veins
e. Capillaries, arterioles, post capillary venules, veins, and arteries
Answer: c
Capillaries, arterioles, and post capillary venules make up the microvascular bed of a .tissue
.4
?What are wide, leaky capillaries called
a. Continuous capillaries
b. Fenestrated capillaries
c. Sinusoidal capillaries
d. AV anastomoses
e. Venous sinus
Answer: c
A characteristic of continuous capillaries is that things are transported across the .epithelium via pinocytotic vesicles
.A characteristic of fenestrated capillaries is the presence of pores or fenestrae
Sinusoidal capillaries (sinusoids) are wide leaky capillaries. They are found in the liver, .spleen, and bone marrow
An arteriovenous anastomoses (AV anastomoses or AV shunt) is a direct route between .arteries and veins. It bypasses the capillary bed
A venous sinus is a venous space lined by endothelium. A venous sinus surrounding the .brain exists which is called the dural sinus
.5
?What is a direct route between arteries and veins called
a. Continuous capillaries
b. Fenestrated capillaries
c. Sinusoidal capillaries
d. AV anastomoses
e. Venous sinus
Answer: d
A characteristic of continuous capillaries is that things are transported across the .epithelium via pinocytotic vesicles
.A characteristic of fenestrated capillaries is the presence of pores or fenestrae
Sinusoidal capillaries (sinusoids) are wide leaky capillaries. They are found in the liver, .spleen, and bone marrow
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.arteries and veins. It bypasses the capillary bed
A venous sinus is a venous space lined by endothelium. A venous sinus surrounding the .brain exists which is called the dural sinus
.6
?Which layer in an elastic artery is the largest thickest
a. Tunica intima
b. Tunica albuginea
c. Tunica externa
d. Tunica vaculosa
e. Tunica media
Answer: e
.In an elastic artery, the tunica media is the thickest
.7
?In which of the following is an arterial portal system found
a. Kidney
b. Liver
c. Muscle
d. Brain
e. Stomach
Answer: a
The normal flow of blood is as follows: artery - arteriole - capillary - post capillary .venule -vein. However, exceptions to this pattern of blood flow exist
The phenomenon when a vein is between two capillary beds is called a venous portal system. An example of this is the hepatic portal system. Another example of a venous .portal system is seen in the brain between the hypothalamus and pituitary
The phenomenon when an arteriole is between two capillary beds is called an arterial .portal system. This is seen in the kidney
.8
?What are vasa vasorum
a. Vasoactive material
b. Valves
c. Vasopressin secreting cells
d. Nerves
e. Blood vessels
Answer: e
Vasa vasorum are the blood vessels of the blood vessels. These are the vessels which .supply the vessel wall
.9
?Which structure has only a few layers of muscle in the tunica media
a. Capillary
b. Arteriole
c. Elastic artery
d. Muscular artery
Answer: b
The tunica media is the middle layer of a blood vessel. The tunica media is primarily

.smooth muscle
.10
?Which layer in a large vessel contains the nervi vascularis
a. Tunica intima
b. Tunica media
c. Tunica externa
d. All of the above
e. None of the above
Answer: c
The tunica intima is the innermost layer of a blood vessel. It is lined by endothelium
The tunica media is the middle layer of a blood vessel. The tunica media is primarily
.smooth muscle
The tunica externa or tunica adventitia is the outer layer of a blood vessel. In large vessels, the tunica adventitia contains vasa vasorum (blood vessels) and nervi vascularis
.(nerves)

Histology Testbank: Vessels 3a
.1
?What vessel regulates the amount of blood going into a capillary bed
a. Capillary
b. Arteriole
c. Venule
d. Elastic artery
e. Muscular artery
Answer: b
Capillaries are very thin walled in order to easily allow the exchange of gases. Gaseous
.exchange between the blood and tissues occurs at the level of the capillaries
Arterioles are small branches of arteries with only one or two layers of smooth muscle in the tunica media. Arterioles regulate the amount of blood going into the capillary
.bed
.Venules are small branches of veins
Elastic arteries are the arteries leaving the heart and the major branches. The aorta is
.an elastic artery
Most of the named arteries are muscular arteries (with the exception of the aorta and the major branches off the aorta). The dividing line between elastic arteries and muscular arteries is not clear cut. However, a pronounced internal elastic membrane
.and external elastic membrane are distinguishing characteristics of muscular arteries
Histology hint from Sarah Bellham: Elastic arteries also have an internal elastic membrane. However, there is so much elastic material in the tunica intima of an elastic
.artery, that a single, discrete internal elastic membrane is not visible
.2
?What is the aorta
a. Capillary
b. Arteriole

c. Venule
d. Elastic artery
e. Muscular artery
Answer: d
Capillaries are very thin walled in order to easily allow the exchange of gases. Gaseous .exchange between the blood and tissues occurs at the level of the capillaries
Arterioles are small branches of arteries with only one or two layers of smooth muscle in the tunica media. Arterioles regulate the amount of blood going into the capillary .bed
.Venules are small branches of veins
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Histology hint from Sarah Bellham: Elastic arteries also have an internal elastic membrane. However, there is so much elastic material in the tunica intima of an elastic .artery, that a single, discrete internal elastic membrane is not visible
.3
?What are most of the named arteries in the body
a. Capillary
b. Arteriole
c. Venule
d. Elastic artery
e. Muscular artery
Answer: e
Capillaries are very thin walled in order to easily allow the exchange of gases. Gaseous .exchange between the blood and tissues occurs at the level of the capillaries
Arterioles are small branches of arteries with only one or two layers of smooth muscle in the tunica media. Arterioles regulate the amount of blood going into the capillary .bed
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Histology hint from Sarah Bellham: Elastic arteries also have an internal elastic membrane. However, there is so much elastic material in the tunica intima of an elastic .artery, that a single, discrete internal elastic membrane is not visible
.4
?Which structure contains pores
a. Continuous capillaries

b. Fenestrated capillaries
c. Sinusoidal capillaries
d. AV anastomoses
e. Venous sinus
Answer: b
A characteristic of continuous capillaries is that things are transported across the .epithelium via pinocytotic vesicles
.A characteristic of fenestrated capillaries is the presence of pores or fenestrae
Sinusoidal capillaries (sinusoids) are wide leaky capillaries. They are found in the liver, .spleen, and bone marrow
An arteriovenous anastomoses (AV anastomoses or AV shunt) is a direct route between .arteries and veins. It bypasses the capillary bed
A venous sinus is a venous space lined by endothelium. A venous sinus surrounding the .brain exists which is called the dural sinus
.5
Which one of the following is a pluripotential cell that is prevalent around post capillary ?venules
a. Fibroblast
b. Endothelial cell
c. Pericyte
d. Histiocyte
e. Macrophage
.A pericyte is a pluripotential cell that is prevalent around post capillary venules
.6
?Which layer in an artery is also called the tunica adventitia
a. Tunica intima
b. Tunica media
c. Tunica externa
d. All of the above
e. None of the above
Answer: c
The tunica intima is the innermost layer of a blood vessel. It is lined by endothelium
The tunica media is the middle layer of a blood vessel. The tunica media is primarily .smooth muscle
The tunica externa or tunica adventitia is the outer layer of a blood vessel. In large vessels, the tunica adventitia contains vasa vasorum (blood vessels) and nervi vascularis .(nerves)
.7
?Which layer in an artery is primarily connective tissue
a. Tunica intima
b. Tunica media
c. Tunica externa
d. All of the above
e. None of the above
Answer: c

The tunica intima is the innermost layer of a blood vessel. It is lined by endothelium
The tunica media is the middle layer of a blood vessel. The tunica media is primarily
.smooth muscle
The tunica externa or tunica adventitia is the outer layer of a blood vessel. In large vessels, the tunica adventitia contains vasa vasorum (blood vessels) and nervi vascularis
.(nerves)
.8
?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
Answer: a
The lining of a blood vessel is simple squamous epithelium. This lining is called endothelium. Epithelium lines body cavities and surfaces. Simple squamous epithelium is "simple" because it is one cell thick. "Squamous" refers to the fact that the cells are
.flat
.9
?In which of the following is a venous portal system found
a. Kidney
b. Liver
c. Muscle
d. Skin
e. Stomach
Answer: b
The normal flow of blood is as follows: artery - arteriole - capillary - post capillary
.venule -vein. However, exceptions to this pattern of blood flow exist
The phenomenon when a vein is between two capillary beds is called a venous portal system. An example of this is the hepatic portal system. Another example of a venous
.portal system is seen in the brain between the hypothalamus and pituitary
The phenomenon when an arteriole is between two capillary beds is called an arterial
.portal system. This is seen in the kidney
.10
?What are nervi vascularis
a. Neuropil
b. Neuroglia
c. Pigmented lesion of a vessel
d. Nerves
e. Blood vessels
Answer: d
Nervi vascularis are nerves of the blood vessels. These are the nerves which supply the
.vessel wall

Histology Testbank: Blood Vessels 4a
.1
?Which structure receives blood from the capillary bed
a. Capillary
b. Arteriole
c. Venule
d. Elastic artery
e. Muscular artery
Answer: c
Capillaries are very thin walled in order to easily allow the exchange of gases. Gaseous .exchange between the blood and tissues occurs at the level of the capillaries
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Histology hint from Sarah Bellham: Elastic arteries also have an internal elastic membrane. However, there is so much elastic material in the tunica intima of an elastic .artery, that a single, discrete internal elastic membrane is not visible
.2
?Which layer in a large artery or vein contains the vasa vasorum
a. Tunica intima
b. Tunica media
c. Tunica externa
d. All of the above
e. None of the above
Answer: c
The tunica intima is the innermost layer of a blood vessel. It is lined by endothelium
The tunica media is the middle layer of a blood vessel. The tunica media is primarily .smooth muscle
The tunica externa or tunica adventitia is the outer layer of a blood vessel. In large vessels, the tunica adventitia contains vasa vasorum (blood vessels) and nervi vascularis .(nerves)
.3
?What is the venous channel which is around the brain
a. Continuous capillaries
b. Fenestrated capillaries
c. Sinusoidal capillaries
d. AV Anastomoses
e. Venous sinus

Answer: e
A characteristic of continuous capillaries is that things are transported across the .epithelium via pinocytotic vesicles
.A characteristic of fenestrated capillaries is the presence of pores or fenestrae
Sinusoidal capillaries (sinusoids) are wide leaky capillaries. They are found in the liver, .spleen, and bone marrow
An arteriovenous anastomoses (AV anastomoses or AV shunt) is a direct route between .arteries and veins. It bypasses the capillary bed
A venous sinus is a venous space lined by endothelium. A venous sinus surrounding the .brain exists which is called the dural sinus

Histology Testbank: Lymphatic System 1a
.1
?What is another term for lymphatic nodules
a. Lymph follicles
b. White pulp
c. Peyer's patches
d. Lymph node
e. Diffuse lymphatic tissue
Answer: a
The localized concentrations of lymphocytes that are seen in the respiratory tract, genitourinary tract, and gastrointestinal tract are lymph follicles. They are also called .lymphatic nodules
.The lymphatic tissue in the spleen is called white pulp
.The large aggregates of lymphatic tissue in the ileum are called Peyer's patches
.A lymph node is an encapsulated lymphatic organ
The random distribution of lymphocytes seen in the lamina propria of the respiratory

tract, genitourinary tract, and gastrointestinal tract is called diffuse lymphatic tissue. .Difuse lymphatic tissue in not encapsulated

.2

?Which layer of the gastrointestinal tract contains the gut associated lymphatic tissue

a. Mucosa

b. Sub mucosa

c. Muscularis externa

d. Serosa

e. Adventitia

Answer: a

The mucosa is the innermost layer of the GI tract. The mucosa consists of a lining epithelium, lamina propria and muscularis mucosae. Gut associated lymphatic tissue .(GALT) is found in the mucosa and sometimes extends into the submucosa

.3

?Which of the following is NOT made of a framework of reticular fibers

a. Bone marrow

b. Lymph node

c. Spleen

d. Thymus

.e. None of the above--all are made of a framework of reticular fibers

Answer: d

Bone marrow, lymph nodes, the spleen and the thymus are all part of the lymphatic system. Most lymphatic organs are made of a framework of reticular fibers and reticular .cells. However, the thymus is made of epithelioreticular cells instead

.4

?What is the acronym for the diffuse lymphatic tissue found in the intestinal tract

a. BALT

b. DALT

c. FALT

d. GALT

e. HALT

Answer: d

Diffuse lymphatic tissue is non-encapsulated lymphatic tissue. It is found in the gastrointestinal tract, the genito-urinary tract, and the respiratory tract. In the gastrointestinal tract it is referred to as GALT (gut associated lymphatic tissue). In the .respiratory tract it is referred to as BALT (bronchi associated lymphatic tissue)

.5

?What is another name for a splenic nodule

a. Malpighian corpuscle

b. Trabeculae

c. White pulp

d. Red pulp

e. Cords of Billroth

Answer: a

The spleen has a connective tissue capsule. The invaginations of the capsule into the

.splenic parenchyma are trabeculae
The parenchyma of the spleen can be divided into the white pulp and the red pulp. The white pulp of the spleen is the lymphatic portion of the spleen. Within the white pulp, .splenic nodules are found. Splenic nodules are also called Malpighian corpuscles
The red pulp is made up of the splenic sinuses and splenic cords. The splenic cords are .also called the cords of Billroth
.6
?What is the term for the entire lymphatic region of the spleen
a. Malpighian corpuscle
b. Trabeculae
c. White pulp
d. Red pulp
e. Cords of Billroth
Answer: c
The spleen has a connective tissue capsule. The invaginations of the capsule into the .splenic parenchyma are trabeculae
The parenchyma of the spleen can be divided into the white pulp and the red pulp. The white pulp of the spleen is the lymphatic portion of the spleen. Within the white pulp, .splenic nodules are found. Splenic nodules are also called Malpighian corpuscles
The red pulp is made up of the splenic sinuses and splenic cords. The splenic cords are .also called the cords of Billroth
.7
?Which of the following is NOT a function of the spleen
a. Destruction of red blood cells
b. Lymphocyte production
c. Storage of blood
d. Fetal blood cell formation
e. All of the above are functions of the spleen
Answer: e
The spleen is involved in destruction of old or damaged red blood cells. Storage of blood occurs in the spleen. In the fetus, the spleen is involved in blood cell formation. .Lymphocyte and antibody production occurs in the spleen
.8
?When looking at a lymph node, where are lymphatic nodules
a. Deep cortex
b. Tertiary cortex
c. Juxtamedullary cortex
d. Paracortical zone
e. Outer cortex
Answer: e
Deep cortex, tertiary cortex, juxtamedullary cortex and paracortical zone are all terms for the same region in a lymph node. The deep cortex is the inner region of the cortex, .next to the medulla
Lymphatic nodules are not found in the deep cortex. Lymphatic nodules are found in the .outer cortex

.9
?Where do T lymphocytes gain their immunocompetence
a. Thymus
b. Thyroid
c. Bursa of Fabricus
d. Bone marrow
e. Lymph node
Answer: a
.T cells gain their immunocompetence in the thymus
.10
What do you call the random distribution of lymphocytes that are found in the ?respiratory tract, genitourinary tract, and gastrointestinal tract
a. Lymph follicles
b. White pulp
c. Peyer's patches
d. Lymph node
e. Diffuse lymphatic tissue
Answer: e
The localized concentrations of lymphocytes that are seen in the respiratory tract, genitourinary tract, and gastrointestinal tract are lymph follicles. They are also called .lymphatic nodules
.The lymphatic tissue in the spleen is called white pulp
.The large aggregates of lymphatic tissue in the ileum are called Peyer's patches
.A lymph node is an encapsulated lymphatic organ
The random distribution of lymphocytes seen in the lamina propria of the respiratory tract, genitourinary tract, and gastrointestinal tract is called diffuse lymphatic tissue.
.Difuse lymphatic tissue in not encapsulated

Histology Testbank: Lymphatic System 2a

.1
?What is a characteristic of a secondary nodule
a. Germinal center
b. Lymphocytes
c. Capsule
d. Trabeculae
e. None of the above
Answer: a
.A secondary lymphatic nodule is characterized by the presence of a germinal center
.2
?Which of the following is composed of epithelioreticular cells
a. Spleen
b. Thymus
c. Bone marrow
d. Lymph node

e. None of the above
Answer: b
Bone marrow, lymph nodes, the spleen and the thymus are all part of the lymphatic system. Most lymphatic organs are made of a framework of reticular fibers and reticular .cells. However, the thymus is made of epithelioreticular cells instead
.3
?What is the acronym for the diffuse lymphatic tissue in the respiratory tract
a. BALT
b. DALT
c. FALT
d. GALT
e. HALT
Answer: a
Diffuse lymphatic tissue is non-encapsulated lymphatic tissue. It is found in the gastrointestinal tract, the genito-urinary tract, and the respiratory tract. In the gastrointestinal tract it is referred to as GALT (gut associated lymphatic tissue). In the .respiratory tract it is referred to as BALT (bronchi associated lymphatic tissue)
.4
What are the localized concentrations of lymphocytes that are seen in the respiratory ?tract, genitourinary tract, and gastrointestinal tract
a. Lymph follicles
b. White pulp
c. Peyer's patches
d. Lymph node
e. Diffuse lymphatic tissue
Answer: a
The localized concentrations of lymphocytes that are seen in the respiratory tract, genitourinary tract, and gastrointestinal tract are lymph follicles. They are also called .lymphatic nodules
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.Difuse lymphatic tissue in not encapsulated
.5
?What is the lymphatic tissue in the spleen called
a. Lymph follicles
b. White pulp
c. Peyer's patches
d. Lymph node
e. Diffuse lymphatic tissue
Answer: b
The localized concentrations of lymphocytes that are seen in the respiratory tract, genitourinary tract, and gastrointestinal tract are lymph follicles. They are also called

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.The large aggregates of lymphatic tissue in the ileum are called Peyer's patches
.A lymph node is an encapsulated lymphatic organ
The random distribution of lymphocytes seen in the lamina propria of the respiratory tract, genitourinary tract, and gastrointestinal tract is called diffuse lymphatic tissue.
.Difuse lymphatic tissue in not encapsulated
.6
?What are the splenic cords
a. Cords of Billroth
b. Cords of Paneth
c. Cords of Bellini
d. Cords of Rothchild
e. Cords of Hassall
Answer: a
.The splenic cords are also called the cords of Billroth
.7
When looking at the spleen, what are the invaginations of the capsule into the splenic ?parenchyma called
a. Malpighian corpuscle
b. Trabeculae
c. White pulp
d. Red pulp
e. Cords of Billroth
Answer: b
The spleen has a connective tissue capsule. The invaginations of the capsule into the .splenic parenchyma are trabeculae
The parenchyma of the spleen can be divided into the white pulp and the red pulp. The white pulp of the spleen is the lymphatic portion of the spleen. Within the white pulp, .splenic nodules are found. Splenic nodules are also called Malpighian corpuscles
The red pulp is made up of the splenic sinuses and splenic cords. The splenic cords are .also called the cords of Billroth
.8
When looking at a lymph node, which term does not refer to the same region as all the ?others listed
a. Deep cortex
b. Tertiary cortex
c. Outer cortex
d. Juxtamedullary cortex
e. Paracortical zone
Answer: c
Deep cortex, tertiary cortex, juxtamedullary cortex and paracortical zone are all terms for the same region in a lymph node. The deep cortex is the inner region of the cortex, .next to the medulla
.9

?What are the spherical structures seen in the medulla of the thymus called
a. Psammoma bodies
b. Corpora arenacea
c. Hassall's corpuscles
d. Prostatic concretions
e. Pacinian corpuscles
Answer: c
Psammoma bodies are collections of calcium. It is derived from the Greek word ."psammos", which means sand
Corpora arenacea refers to the calcifications seen in the pineal gland. Corpora arenacea ."is nicknamed "brain sand
.Hassall's corpuscles are the ring like structures found in the thymus
.The spherical structures seen in some prostatic alveoli are called prostatic concretions
.Pacinian corpuscles are pressure receptors in the skin
.10
?Where are Peyer's patches located
a. Esophagus
b. Stomach
c. Small intestine
d. Large intestine
e. Rectum
Answer: c
Peyer's patches are large nodules of lymphatic tissue. They are seen in the small .intestine

Histology Testbank: Lymphatic System 3a
.1
?What are the large aggregates of lymphatic tissue in the ileum
a. Lymph follicles
b. White pulp
c. Peyer's patches
d. Lymph node
e. Diffuse lymphatic tissue
Answer: c
The localized concentrations of lymphocytes that are seen in the respiratory tract, genitourinary tract, and gastrointestinal tract are lymph follicles. They are also called .lymphatic nodules
.The lymphatic tissue in the spleen is called white pulp
.The large aggregates of lymphatic tissue in the ileum are called Peyer's patches
.A lymph node is an encapsulated lymphatic organ
The random distribution of lymphocytes seen in the lamina propria of the respiratory tract, genitourinary tract, and gastrointestinal tract is called diffuse lymphatic tissue.
.Difuse lymphatic tissue in not encapsulated
.2
?Where is diffuse lymphatic tissue NOT found

a. Gastrointestinal tract
b. Central nervous system
c. Genito-urinary tract
d. Respiratory tract
e. None of the above-diffuse lymphatic tissue is found in all of these regions
Answer: b
Diffuse lymphatic tissue is non-encapsulated lymphatic tissue. It is found in the gastrointestinal tract, the genito-urinary tract, and the respiratory tract. In the gastrointestinal tract it is referred to as GALT (gut associated lymphatic tissue). In the respiratory tract it is referred to as BALT (bronchi associated lymphatic tissue). Diffuse .lymphatic tissue is not found in the central nervous system
.3
?Where are the splenic sinuses
a. Malpighian corpuscle
b. Trabeculae
c. White pulp
d. Red pulp
e. Cords of Billroth
Answer: d
The spleen has a connective tissue capsule. The invaginations of the capsule into the .splenic parenchyma are trabeculae
The parenchyma of the spleen can be divided into the white pulp and the red pulp. The white pulp of the spleen is the lymphatic portion of the spleen. Within the white pulp, .splenic nodules are found. Splenic nodules are also called Malpighian corpuscles
The red pulp is made up of the splenic sinuses and splenic cords. The splenic cords are .also called the cords of Billroth
.4
?What does the acronym PALS stand for
a. Papillary layer sinus
b. Peyer's lymphatic sheath
c. Periarterial lymphatic sheath
d. Peripheral lymphatic sinus
e. Parenchymal lymphatic sheath
Answer: c
PALS stands for periarterial lymphatic sheath. Periarterial lymphatic sheaths are the .lymphocytes which surround the central artery in the spleen
.5
?Which of the following is an encapsulated lymphatic organ
a. Lymph follicles
b. White pulp
c. Peyer's patches
d. Lymph node
e. Diffuse lymphatic tissue
Answer: d
The localized concentrations of lymphocytes that are seen in the respiratory tract,

genitourinary tract, and gastrointestinal tract are lymph follicles. They are also called .lymphatic nodules
.The lymphatic tissue in the spleen is called white pulp
.The large aggregates of lymphatic tissue in the ileum are called Peyer's patches
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The random distribution of lymphocytes seen in the lamina propria of the respiratory tract, genitourinary tract, and gastrointestinal tract is called diffuse lymphatic tissue.
.Difuse lymphatic tissue in not encapsulated

Histology Testbank: Skin 1a

.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
Answer: c
The skin is composed of two layers: the epidermis and the dermis. Underneath these layers lies the hypodermis. The epidermis is stratified squamous epithelium. The dermis is composed of a papillary layer and a reticular layer. The reticular layer of the dermis is made up of dense irregular connective tissue. The hypodermis is a layer of loose .connective tissue
.2
?Where is thick skin found
a. Over the knee
b. Sole of the feet
c. Breast
d. Lips
e. All of the above
Answer: b
.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
Answer: c

The epidermis is divided into five layers: stratum basale, stratum spinosum, stratum .granulosum, stratum lucidum, and stratum corneum
The stratum basale contains the dividing cells. This layer is also called the stratum .germinativum
The stratum spinosum consists of a layer several cells deep. The cells have pointy or spiny processes on them. The cells in the stratum granulosum contain keratohyaline .granules
.The stratum lucidum is present only in thick skin
The stratum corneum is the outermost layer. The cells in this layer are essentially bags .of keratin. They contain no nuclei or organelles
Histology hint from Sarah Bellham: My favorite mnemonic for remembering the layers "of the skin: "Californian Ladies Give Superb Backrubs
.4
?Which cell is a macrophage found in the skin
a. Kupffer cells
b. Histiocyte
c. Dust cell
d. Langerhans cell
e. Microglia
Answer: d
Macrophages are mononuclear phagocytes. Many tissues have resident (fixed) macrophages. Fixed macrophages are given a unique name, depending on the tissue that they are located in. Kupffer cells are the hepatic macrophages. Histiocytes are macrophages seen in connective tissue. Dust cells are alveolar macrophage found in the respiratory tract. Langerhans cells are macrophages seen in the skin. Microglia are the .central nervous system macrophages
.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
Answer: e
Langerhans cells, keratinocytes, melanocytes, and Merkel cells are all found in the epidermis. The Langerhans cell is a phagocyte. The keratinocyte is the most abundant cell in the epidermis. The melanocyte produces melanin, which is responsible for skin .pigmentation. The Merkel cell is a mechanoreceptor
.Fibroblasts are found in the dermis. Fibroblasts produces collagen
.6
?What is the half moon shaped white area on a nail called
a. Lunula
b. Eponychium
c. Matrix

d. Nail bed
e. Root
Answer: a
The lunula is the half moon shaped white area on a nail. The anatomical term for the cuticle is the eponychium. The matrix is the region of the nails where there are dividing cells and nail growth. The nail plate rests on the nail bed. The nail root is the proximal .portion of the nail that is underneath skin
.7
?What is the growing part of the nail
a. Lunula
b. Eponychium
c. Matrix
d. Nail bed
e. Root
Answer: c
The lunula is the half moon shaped white area on a nail. The anatomical term for the cuticle is the eponychium. The matrix is the region of the nails where there are dividing cells and nail growth. The nail plate rests on the nail bed. The nail root is the proximal .portion of the nail that is underneath skin
.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
Answer: d
.The ceruminous glands of the ear are apocrine sweat glands
.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
Answer: a
There are several different sensory receptors in the skin. The most abundant sensory receptor are the free nerve endings. Free nerve endings respond to pain and temperature. Ruffini's corpuscles respond to continuous pressure. Pacinian corpuscles respond to vibration and rapidly changing pressure. Krause's end bulbs are a receptor for fine touch which are located in mucous membranes and the tongue. Meissner's .corpuscles are also a receptor for fine touch but they are located in the dermis
.10
?Where can hair be found
a. Palms of hand

b. Soles of feet
c. Urogenital openings
d. Lips
e. Eyelid
,Hair is present over most of the body. It is not found on the palms of the hand .soles of the feet, urogenital openings, and lips

Histology Testbank: Skin 2a

.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
Answer: e
The skin is composed of two layers: the epidermis and the dermis. Underneath these layers lies the hypodermis. The epidermis is stratified squamous epithelium. The dermis is composed of a papillary layer and a reticular layer. The reticular layer of the dermis is made up of dense irregular connective tissue. The hypodermis is a layer of loose .connective tissue

.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
Answer: b
The skin is composed of two layers: the epidermis and the dermis. Underneath these layers lies the hypodermis. The epidermis is stratified squamous epithelium. The dermis is composed of a papillary layer and a reticular layer. The reticular layer of the dermis is made up of dense irregular connective tissue. The hypodermis is a layer of loose .connective tissue

.3
?Where is thick skin found
a. Lips
b. Over the knee
c. Palms
d. Breast
e. All of the above
Answer: c
Thick skin is found on the palms of the hand and the sole of the feet. Thin skin

.is found everywhere else
.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
Answer: d
The epidermis is divided into five layers: stratum basale, stratum spinosum, stratum .granulosum, stratum lucidum, and stratum corneum
The stratum basale contains the dividing cells. This layer is also called the stratum .germinativum
The stratum spinosum consists of a layer several cells deep. The cells have pointy or spiny processes on them. The cells in the stratum granulosum contain keratohyaline .granules
.The stratum lucidum is present only in thick skin
The stratum corneum is the outermost layer. The cells in this layer are essentially bags .of keratin. They contain no nuclei or organelles
Note from Sarah Bellham: My favorite mnemonic for remembering the layers of the "skin: "Californian Ladies Give Superb Backrubs
.5
?Which cell is a mechanoreceptors
a. Langerhans cell
b. Keratinocyte
c. Melanocyte
d. Merkel cell
e. Fibroblast
Answer: d
Langerhans cells, keratinocytes, melanocytes, and Merkel cells are all found in the epidermis. The Langerhans cell is a phagocyte. The keratinocyte is the most abundant cell in the epidermis. The melanocyte produces melanin, which is responsible for skin .pigmentation. The Merkel cell is a mechanoreceptor
.Fibroblasts are found in the dermis. Fibroblasts produces collagen
.6
?Which cell is found in the dermis
a. Langerhans cell
b. Keratinocyte
c. Melanocyte
d. Merkel cell
e. Fibroblast
Answer: e
Langerhans cells, keratinocytes, melanocytes, and Merkel cells are all found in the epidermis. The Langerhans cell is a phagocyte. The keratinocyte is the most abundant cell in the epidermis. The melanocyte produces melanin, which is responsible for skin

.pigmentation. The Merkel cell is a mechanoreceptor
.Fibroblasts are found in the dermis. Fibroblasts produces collagen
.7
?What is underneath the nail plate
a. Lunula
b. Eponychium
c. Matrix
d. Nail bed
e. Root
Answer: d
The lunula is the half moon shaped white area on a nail. The anatomical term for the cuticle is the eponychium. The matrix is the region of the nails where there are dividing cells and nail growth. The nail plate rests on the nail bed. The nail root is the proximal
.portion of the nail that is underneath skin
.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
Answer: b
Eccrine sweat glands are innervated by the sympathetic nervous system. The
.neurotransmitter for the eccrine sweat glands is acetylcholine. Thus it is cholinergic
Note from Sarah Bellham: For most postganglionic sympathetic neurons, the neurotransmitter is norepinephrine. Eccrine sweat glands are an exception to this
.generalization, as the innervation for eccrine sweat glands is cholinergic sympathetic
.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
Answer: b
There are several different sensory receptors in the skin. The most abundant sensory receptor are the free nerve endings. Free nerve endings respond to pain and temperature. Ruffini's corpuscles respond to continuous pressure. Pacinian corpuscles respond to vibration and rapidly changing pressure. Krause's end bulbs are a receptor for fine touch which are located in mucous membranes and the tongue. Meissner's
.corpuscles are also a receptor for fine touch but they are located in the dermis
.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
Answer: c
.Pigment epithelium, Muller's cells, horizontal cells, and cones are all part of the retina
.Huxley's layer is a layer in the hair follicle

Histology Testbank: Skin 3a
.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
Answer: b
The skin is composed of two layers: the epidermis and the dermis. Underneath these layers lies the hypodermis. The epidermis is stratified squamous epithelium. The dermis is composed of a papillary layer and a reticular layer. The reticular layer of the dermis is made up of dense irregular connective tissue. The hypodermis is a layer of loose
.connective tissue
.2
?Which of the following is NOT considered an epidermal appendage
a. Sweat gland
b. Hair
c. Hypodermis
d. Nails
e. Sebaceous glands
Answer: c
Sweat glands, hair, nails and sebaceous glands are all considered epidermal appendages. The hypodermis is not considered an epidermal appendage. The
.hypodermis is the loose connective tissue layer underneath the dermis
.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
Answer: a
The epidermis is divided into five layers: stratum basale, stratum spinosum, stratum
.granulosum, stratum lucidum, and stratum corneum
The stratum basale contains the dividing cells. This layer is also called the stratum
.germinativum

The stratum spinosum consists of a layer several cells deep. The cells have pointy or spiny processes on them. The cells in the stratum granulosum contain keratohyaline .granules
.The stratum lucidum is present only in thick skin
The stratum corneum is the outermost layer. The cells in this layer are essentially bags .of keratin. They contain no nuclei or organelles
Note from Sarah Bellham: My favorite mnemonic for remembering the layers of the "skin: "Californian Ladies Give Superb Backrubs
.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
Answer: e
The epidermis is divided into five layers: stratum basale, stratum spinosum, stratum .granulosum, stratum lucidum, and stratum corneum
The stratum basale contains the dividing cells. This layer is also called the stratum .germinativum
The stratum spinosum consists of a layer several cells deep. The cells have pointy or spiny processes on them. The cells in the stratum granulosum contain keratohyaline .granules
.The stratum lucidum is present only in thick skin
The stratum corneum is the outermost layer. The cells in this layer are essentially bags .of keratin. They contain no nuclei or organelles
Note from Sarah Bellham: My favorite mnemonic for remembering the layers of the "skin: "Californian Ladies Give Superb Backrubs
.5
?Which cell is the most abundant cell in the epidermis
a. Langerhans cell
b. Keratinocyte
c. Melanocyte
d. Merkel cell
e. Fibroblast
Answer: b
Langerhans cells, keratinocytes, melanocytes, and Merkel cells are all found in the epidermis. The Langerhans cell is a phagocyte. The keratinocyte is the most abundant cell in the epidermis. The melanocyte produces melanin, which is responsible for skin .pigmentation. The Merkel cell is a mechanoreceptor
.Fibroblasts are found in the dermis. Fibroblasts produces collagen
.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
Answer: d
The epidermis is formed by stratified squamous epithelium. Epithelium lines body cavities and surfaces. Stratified squamous epithelium is "stratified" because it is more than one cell layer thick. "Squamous" refers to the fact that the surface cells of the stratified squamous layer are flat. This is important to note as the cells at the basal layer are cuboidal or even columnar. It is still classified as "squamous" based on the .cells of the surface layer
.7
?What is the portion of the nail which is underneath skin
a. Lunula
b. Eponychium
c. Matrix
d. Nail bed
e. Root
Answer: e
The lunula is the half moon shaped white area on a nail. The anatomical term for the cuticle is the eponychium. The matrix is the region of the nails where there are dividing cells and nail growth. The nail plate rests on the nail bed. The nail root is the proximal .portion of the nail that is underneath skin
.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
Answer: b
.The glands of Moll in the eyelid are apocrine sweat glands
.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
Answer: c
There are several different sensory receptors in the skin. The most abundant sensory receptor are the free nerve endings. Free nerve endings respond to pain and temperature. Ruffini's corpuscles respond to continuous pressure. Pacinian corpuscles respond to vibration and rapidly changing pressure. Krause's end bulbs are a receptor for fine touch which are located in mucous membranes and the tongue. Meissner's .corpuscles are also a receptor for fine touch but they are located in the dermis

.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
Answer: d
There are several different sensory receptors in the skin. The most abundant sensory receptor are the free nerve endings. Free nerve endings respond to pain and temperature. Ruffini's corpuscles respond to continuous pressure. Pacinian corpuscles respond to vibration and rapidly changing pressure. Krause's end bulbs are a receptor for fine touch which are located in mucous membranes and the tongue. Meissner's .corpuscles are also a receptor for fine touch but they are located in the dermis

Histology Testbank: Skin 4
.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
Answer: a
The skin is composed of two layers: the epidermis and the dermis. Underneath these layers lies the hypodermis. The epidermis is stratified squamous epithelium. The dermis is composed of a papillary layer and a reticular layer. The reticular layer of the dermis is made up of dense irregular connective tissue. The hypodermis is a layer of loose .connective tissue
.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
Answer: e
The skin is involved in the production of vitamin D from precursors with the aid of the sun. It protects the body from water loss. There are many sensory receptors in the skin: pain, pressure, fine touch. The skin is also involved in heat regulation. In addition, the .skin protects the body
.3

?Which layer of the epidermis contains dividing cells
a. Stratum basale
b. Stratum spinosum
c. Stratum granulosum
d. Stratum lucidum
e. Stratum corneum
Answer: a
The epidermis is divided into five layers: stratum basale, stratum spinosum, stratum .granulosum, stratum lucidum, and stratum corneum
The stratum basale contains the dividing cells. This layer is also called the stratum .germinativum
The stratum spinosum consists of a layer several cells deep. The cells have pointy or spiny processes on them. The cells in the stratum granulosum contain keratohyaline .granules
.The stratum lucidum is present only in thick skin
The stratum corneum is the outermost layer. The cells in this layer are essentially bags .of keratin. They contain no nuclei or organelles
Note from Sarah Bellham: My favorite mnemonic for remembering the layers of the "skin: "Californian Ladies Give Superb Backrubs
.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
Answer: e
The epidermis is divided into five layers: stratum basale, stratum spinosum, stratum .granulosum, stratum lucidum, and stratum corneum
The stratum basale contains the dividing cells. This layer is also called the stratum .germinativum
The stratum spinosum consists of a layer several cells deep. The cells have pointy or spiny processes on them. The cells in the stratum granulosum contain keratohyaline .granules
.The stratum lucidum is present only in thick skin
The stratum corneum is the outermost layer. The cells in this layer are essentially bags .of keratin. They contain no nuclei or organelles
Note from Sarah Bellham: My favorite mnemonic for remembering the layers of the "skin: "Californian Ladies Give Superb Backrubs
.5
?Which cell is a phagocyte
a. Langerhans cell
b. Keratinocyte
c. Melanocyte
d. Merkel cell

e. Fibroblast
Answer: a
Langerhans cells, keratinocytes, melanocytes, and Merkel cells are all found in the epidermis. The Langerhans cell is a phagocyte. The keratinocyte is the most abundant cell in the epidermis. The melanocyte produces melanin, which is responsible for skin .pigmentation. The Merkel cell is a mechanoreceptor
.Fibroblasts are found in the dermis. Fibroblasts produces collagen
.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
Answer: d
Microvilli are the finger like projections seen on the surface of some cells. The .appearance of microvilli form what is also called the brush border or striated border
Stereocilia are very long microvilli. Stereocilia are seen in the epididymis and the hair .cells of the ear
Cilia is the hair like surface modification seen on some epithelia. Cilia are made of .microtubules
Keratinization is seen in the epidermis. Cells in the stratum corneum are essentially just .bags of keratin
.7
?Where are apocrine sweat glands NOT found
a. Areola
b. External genitalia
c. Posterior neck
d. Axilla
e. Circumanal region
Answer: c
Sweat glands are divided into apocrine and eccrine. Apocrine sweat glands are found on the areola, external genitalia, axilla, and curcumanal region. Eccrine sweat glands are .distributed over most of the body
.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
Answer: d
Apocrine sweat glands are innervated by the sympathetic nervous system. The .neurotransmitter for the apocrine sweat glands is norepinephrine. Thus it is adrenergic
.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
Answer: e
There are several different sensory receptors in the skin. The most abundant sensory receptor are the free nerve endings. Free nerve endings respond to pain and temperature. Ruffini's corpuscles respond to continuous pressure. Pacinian corpuscles respond to vibration and rapidly changing pressure. Krause's end bulbs are a receptor for fine touch which are located in mucous membranes and the tongue. Meissner's .corpuscles are also a receptor for fine touch but they are located in the dermis
.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
Answer: a
.Bipolar cells, amacrine cells, rods, and ganglion cells are all part of the retina
.Henle's layer is a layer in the hair follicle

Histology Testbank: Skin 5a
.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
Answer: b
The skin is composed of two layers: the epidermis and the dermis. Underneath these layers lies the hypodermis. The epidermis is stratified squamous epithelium. The dermis is composed of a papillary layer and a reticular layer. The reticular layer of the dermis is made up of dense irregular connective tissue. The hypodermis is a layer of loose .connective tissue
.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
Answer: b
The epidermis is divided into five layers: stratum basale, stratum spinosum, stratum .granulosum, stratum lucidum, and stratum corneum
The stratum basale contains the dividing cells. This layer is also called the stratum .germinativum
The stratum spinosum consists of a layer several cells deep. The cells have pointy or spiny processes on them. The cells in the stratum granulosum contain keratohyaline .granules
.The stratum lucidum is present only in thick skin
The stratum corneum is the outermost layer. The cells in this layer are essentially bags .of keratin. They contain no nuclei or organelles
Note from Sarah Bellham: My favorite mnemonic for remembering the layers of the "skin: "Californian Ladies Give Superb Backrubs
.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
Answer: d
The skin is composed of two layers: the epidermis and the dermis. Underneath these layers lies the hypodermis. The epidermis is stratified squamous epithelium. The dermis is composed of a papillary layer and a reticular layer. The reticular layer of the dermis is made up of dense irregular connective tissue. The hypodermis is a layer of loose .connective tissue
.4
?Which cell is responsible for skin pigmentation
a. Langerhans cell
b. Keratinocyte
c. Melanocyte
d. Merkel cell
e. Fibroblast
Answer: c
Langerhans cells, keratinocytes, melanocytes, and Merkel cells are all found in the epidermis. The Langerhans cell is a phagocyte. The keratinocyte is the most abundant cell in the epidermis. The melanocyte produces melanin, which is responsible for skin .pigmentation. The Merkel cell is a mechanoreceptor
.Fibroblasts are found in the dermis. Fibroblasts produces collagen
.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
Answer: a
There are several different sensory receptors in the skin. The most abundant sensory receptor are the free nerve endings. Free nerve endings respond to pain and temperature. Ruffini's corpuscles respond to continuous pressure. Pacinian corpuscles respond to vibration and rapidly changing pressure. Krause's end bulbs are a receptor for fine touch which are located in mucous membranes and the tongue. Meissner's .corpuscles are also a receptor for fine touch but they are located in the dermis
.6
?What is the correct term for cuticle
a. Lunula
b. Eponychium
c. Matrix
d. Nail bed
e. Root
Answer: b
The lunula is the half moon shaped white area on a nail. The anatomical term for the cuticle is the eponychium. The matrix is the region of the nails where there are dividing cells and nail growth. The nail plate rests on the nail bed. The nail root is the proximal .portion of the nail that is underneath skin
.7
?What color is keratin with Masson's trichrome stain
a. Red
b. Pink
c. Green
d. Black
e. Yellow
Answer: a
A trichrome stain is a mixture of three dyes. Collagen fibers stain green with Masson's trichrome stain. Muscle and keratin will be red with Masson's trichrome stain. .Cytoplasm will be pink. Nuclei will be black
.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
Answer: d
Mesenchyme is embryonic connective tissue. It is an undifferentiated tissue found in the embryo. Mucous connective tissue is a type of embryonic connective tissue; it is a subset of mesenchyme. Wharton's jelly is mucous connective tissue. Loose irregular connective tissue is areolar tissue. Dense irregular connective tissue is seen in the .dermis. Dense regular connective tissue comprises tendons and ligaments

.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
Answer: e
Psammoma bodies are collections of calcium. It is derived from the Greek word
."psammos", which means sand
Corpora arenacea refers to the calcifications seen in the pineal gland. Corpora arenacea
."is nicknamed "brain sand
.Hassall's corpuscles are the ring like structures found in the thymus
.The spherical structures seen in some prostatic alveoli are called prostatic concretions
.Pacinian corpuscles are pressure receptors in the skin
.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
Answer: b
Ruffini endings, pacinian corpuscles, meissner's corpuscles, and merkel cells are all
.encapsulated sensory receptors. Free nerve endings are not encapsulated