

Laboratory Manual for Anatomy and Physiology, 5e (Wood)

Main Exercises

Exercise 1: Laboratory Safety

Exercise 1: Pre-lab Questions

1) All of the following are necessary guidelines to ensure that the laboratory is a safe environment EXCEPT which statement?

- A) No eating is allowed in the laboratory, however drinks are allowed.
- B) Never perform an experiment without your instructor's permission.
- C) Wear shoes at all times in the laboratory.
- D) Only students enrolled in the course are allowed in the laboratory.

Answer: A

Explanation:

B) Experiments should not be started until the instructor gives permission. Also, changes to any experiment that appear in this manual are not allowed.

C) No open-toed shoes should be worn in the laboratory.

D) Anyone who is not enrolled in the course is not allowed to enter the laboratory.

2) The following guidelines should be followed when working with body fluids EXCEPT which statement?

- A) Always assume that a body fluid can infect you with a disease.
- B) Always wear gloves and safety glasses when working with body fluids.
- C) Clean up all body-fluid spills with soap and water.
- D) Work only with your own body fluids.

Answer: C

Explanation:

A) Putting this safeguard into practice will prepare you for working in a clinical setting.

B) Never allow body fluids to touch your unprotected skin, therefore one should always wear gloves and safety glasses.

D) Collecting and experimenting on body fluids from another individual is beyond the scope of this course.

3) The following guidelines will protect you from chemical hazards EXCEPT which statement?

- A) Most chemicals are safe to handle with bare hands.
- B) When mixing solutions always add a chemical to water; never add water to the chemical.
- C) Always use a spoon or spatula to take a dry chemical from a large storage container.
- D) Do not return unused portions of chemicals to their original container.

Answer: A

Explanation:

B) By adding a chemical to water you reduce the chance of a strong chemical reaction occurring.

C) Never shake a dry chemical out of its jar; this may result in dumping the entire container of chemical onto yourself and/or work station.

D) Always dispose of excess chemicals as directed by your instructor.

4) The main instrument that you will use to study anatomy is a _____.

- A) water bath
- B) scalpel
- C) microscope
- D) microcentrifuge

Answer: C

Explanation:

- A) A water bath is used to incubate laboratory samples.
- B) A scalpel is used only in dissections.
- D) A microcentrifuge is used to study blood and urine samples.

5) All of the following are considered to be a hazardous waste EXCEPT _____.

- A) blood
- B) urine
- C) a preserved specimen
- D) a salt solution

Answer: D

Explanation:

- A) Blood is considered to be a hazardous waste.
- B) Urine is a body fluid and is considered a hazardous waste.
- C) Preservatives used to preserve animal specimens are irritants and are considered to be a hazardous waste.

Exercise 1: Post-lab Questions

1) All of the following are considered a hazardous waste EXCEPT _____.

- A) broken glass
- B) urine
- C) a salt solution
- D) a preserved specimen

Answer: C

Explanation:

- A) Broken glass is considered a hazardous waste and needs to be disposed properly.
- B) Urine is a body fluid and therefore is considered to be a hazardous waste.
- D) Preservatives are considered irritants and are considered a hazardous waste.

2) All of the following are proper guidelines for using a microscope EXCEPT which statement?

- A) Use one hand to carry the microscope.
- B) Use only cleaning solution provided by your laboratory instructor to clean the microscope lenses.
- C) Use only special lens paper to clean the lenses of the microscope.
- D) Unplug the microscope by pulling on the plug, not by tugging on the electrical cord.

Answer: A

Explanation:

- B) An unapproved cleaning agent may dissolve the adhesives used in the lenses.
- C) Other papers and cloths may scratch the optical coatings on the lenses.
- D) Pulling on the cord may loosen wires inside the cord, which can cause an electrical short and possibly an electrical shock to anyone touching the cord.

3) Which of the following can be disposed of in the sink?

- A) saliva
- B) blood
- C) salt solution
- D) preservative

Answer: C

Explanation:

- A) Saliva is a body fluid and is considered a hazardous waste.
- B) Blood is a body fluid and is considered a hazardous waste.
- D) Preservatives are considered to be hazardous waste and need to be properly disposed of.

4) Which of the following require wearing gloves to protect your skin?

- A) water bath
- B) microscope
- C) chemicals
- D) none of the above

Answer: C

Explanation:

- A) Using a water bath does not require one to wear gloves.
- B) Using a microscope does not require one to wear gloves.
- D) One of the above answers is the correct answer.

5) Which of the following is a common piece of equipment used in dissecting preserved specimens?

- A) microscope
- B) microcentrifuge
- C) water bath
- D) scalpel

Answer: D

Explanation:

- A) A microscope is used for viewing prepared tissues on slides.
- B) A microcentrifuge is used to separate blood or urine samples.
- C) A water bath is used to incubate laboratory samples at specific temperatures.

Exercise 2: Introduction to the Human Body

Exercise 2: Pre-lab Questions

- 1) Which of the following is the best definition of physiology?
- A) the study of the structure of the human body
 - B) the study of the tissues and organs of the human body
 - C) the study of organ systems and organs of the body
 - D) the study of how the body functions at the various levels of organization

Answer: D

Explanation:

- A) Anatomy is the study of the structures of the human body.
- B) This is part of physiology, the study of the tissues and organs, however when studying physiology it is important to start at the cellular level and work up to the highest level of organization.
- C) Understanding physiology at the cellular level, one will be able apply that knowledge to understanding how physiology functions at each higher level. We always start with the functional unit of each system and work our way up to the overall function of the organism.

- 2) Which of the following regions corresponds to the lower back?

- A) thoracic
- B) lumbar
- C) cephalic
- D) gluteus

Answer: B

Explanation:

- A) This term refers to the thorax or chest.
- C) This term refers to the head.
- D) This region refers to the buttock.

- 3) The right lung lies in the _____ cavity.

- A) dorsal
- B) percardial
- C) pleural
- D) mediastinum

Answer: C

Explanation:

- A) There is no dorsal cavity, the spinal cavity is found on the dorsal side.
- B) The pericardial cavity surrounds the heart.
- D) The mediastinum separates the pleural cavities.

4) Cytology would be best defined as a study of _____.

- A) the gross structures of the body
- B) cell chemistry
- C) cells
- D) tissue

Answer: C

Explanation:

- A) Cytology is the microscopic study of cells.
- B) Cytology is the anatomical study of cells.
- D) Histology is the study of tissues.

5) A cut that separates anterior and posterior structures.

- A) transverse
- B) frontal
- C) midsagittal
- D) parasagittal

Answer: B

Explanation:

- A) This is a cut that separates superior from inferior structures.
- C) This is a cut that divides into right and left equal halves.
- D) This is a cut that separates the body into nearly equal halves.

Exercise 2: Post-lab Questions

1) All of the following may be studied by microanatomists EXCEPT for _____.

- A) a muscle cell
- B) the abdominal muscles
- C) the retina
- D) a biopsy of epithelial tissue

Answer: B

Explanation:

- A) Anything that is too small to be seen by the naked eye is studied by microanatomists.
- C) The retina is too small to be seen by the naked eye, therefore it is studied with a microscope.
- D) Epithelial tissue cells would be too small to see without the aid of a microscope.

2) The maintenance of a relatively steady internal environment through physiology work is termed _____.

- A) positive feedback
- B) homeostasis
- C) negative feedback
- D) integration

Answer: B

Explanation:

- A) This type of feedback system amplifies the effects of a system.
- C) This type of feedback system negates the effects of a system.
- D) The central nervous system integrates information from the sensory nervous system and then sends out commands through the motor nervous system.

3) The heart is found at what level of organization of the cardiovascular system?

- A) cellular
- B) organ
- C) tissue
- D) chemical

Answer: B

Explanation:

- A) Cardiac muscle cells are at the cellular level of organization.
- C) Cardiac muscle is a type of muscle tissue.
- D) Protein contractile fibers are at the chemical level of organization.

4) Histology would be best defined as a study of _____.

- A) cells
- B) cell chemistry
- C) the gross structures of the body
- D) tissues

Answer: D

Explanation:

- A) Cytology is the study of cells.
- B) Cell chemistry would be included in the physiological study of cells.
- C) Gross anatomy studies the larger structures of the body that can be seen without the aid of a microscope.

5) Which of the following is the best definition of anatomy?

- A) the study of human growth and development
- B) the study of the body structures
- C) the study of the tissues and organs of the human body
- D) the study of the function of the human body

Answer: B

Explanation:

- A) This is the study of development and reproduction.
- C) This is the anatomical study of just the tissues and organs.
- D) Physiology studies the functions of the human body.

6) Which structure is medial to the eyes?

- A) ears
- B) shoulders
- C) nose
- D) eyebrows

Answer: C

Explanation:

- A) The ears are lateral to the eyes.
- B) The shoulders are lateral to the eyes.
- D) The eyebrows are superior to the eyes.

7) All the following are found on the ventral side of the body EXCEPT the _____.

- A) knees
- B) shoulder blade
- C) naval
- D) sternum

Answer: B

Explanation:

- A) The knees are found on the ventral side of the body.
- C) The naval is found on the ventral side of the body.
- D) The sternum is found on the ventral side of the body.

8) All the following structures are superior to the hips EXCEPT the _____.

- A) thighs
- B) shoulders
- C) stomach
- D) head

Answer: A

Explanation:

- B) The shoulders are superior to the hips.
- C) The stomach is superior to the hips.
- D) The head is superior to the hips.

9) All the following structures are inferior to the hips EXCEPT the _____.

- A) thighs
- B) feet
- C) knees
- D) waist

Answer: D

Explanation:

- A) The thighs are inferior to the hips.
- B) The feet are inferior to the hips.
- C) The knees are inferior to the hips.

10) All the following describe proper anatomical position EXCEPT the _____.

- A) feet are facing forward
- B) palms are the hands are facing forward
- C) palms of the hands are facing backward
- D) eyes are straight ahead

Answer: C

Explanation:

- A) The feet face forward in proper anatomical position.
- B) The palms of the hands face forward in proper anatomical position.
- D) The eyes are straight ahead in proper anatomical position.

11) The following are all regions of the upper limb EXCEPT _____.

- A) axillary
- B) pollex
- C) antecubital
- D) brachial

Answer: B

Explanation:

- A) Axillary is a region of the upper limb.
- C) Antecubital is a region of the upper limb.
- D) Brachial is a region of the upper limb.

12) The gallbladder is found in which abdominopelvic quadrant?

- A) right upper quadrant
- B) left lower quadrant
- C) left upper quadrant
- D) right lower quadrant

Answer: A

Explanation:

- B) The left lower quadrant houses part of the large intestine and part of the urinary bladder.
- C) The left upper quadrant houses the stomach and spleen.
- D) The lower quadrant contains lower structures such as the large intestine and appendix.

13) All of the following are inferior to the umbilical region EXCEPT the _____.

- A) epigastric region
- B) pubic region
- C) urinary bladder
- D) hypogastric region

Answer: A

Explanation:

- B) The pubic region is inferior to the umbilical region.
- C) The urinary bladder is inferior to the umbilical region.
- D) The hypogastric region is inferior to the umbilical region.

14) There are _____ abdominopelvic regions.

- A) eight
- B) nine
- C) seven
- D) ten

Answer: B

Explanation:

- A) There are more than eight abdominopelvic regions
- C) There are more than seven abdominopelvic regions
- D) There are not ten abdominopelvic regions

- 15) The transtubercular plane of the abdominopelvic region is _____.
- A) inferior to the umbilicus and crosses the abdomen at the level of the superior hips
 - B) positioned slightly medial to the left nipple
 - C) to the umbilicus at the level of the pylorus
 - D) positioned slightly medial to the right nipple

Answer: A

Explanation:

- B) The left lateral plane is positioned slightly medial to the left nipple.
- C) The transpyloric plane is to the umbilicus at the level of the pylorus.
- D) The right lateral plane is positioned slightly medial to the right nipple.

- 16) A cut that passes parallel through the long axis of the body and divides the body into equal left and right halves is known as a _____.

- A) coronal
- B) frontal
- C) parasagittal
- D) midsagittal

Answer: D

Explanation:

- A) A coronal cut is the same as a frontal cut, and separates the anterior from the posterior.
- B) A frontal cut separates the anterior from the posterior.
- C) A parasagittal cut passes through the long axis of the body and divides the body into nearly equal halves.

- 17) This type of section is perpendicular to the vertical orientation of the body.

- A) frontal
- B) oblique
- C) transverse
- D) midsagittal

Answer: C

Explanation:

- A) A frontal section is a vertical section.
- B) An oblique section is at an angle to the body.
- D) A midsagittal section is a vertical section.

- 18) Which type of section would separate the head from the body?

- A) transverse
- B) frontal
- C) sagittal
- D) coronal

Answer: A

Explanation:

- B) A frontal section would separate the front of the head from the back of the head.
- C) A sagittal section would cut the head in half.
- D) A coronal section would separate the front of the head from the back of the head.

19) Which type of section would separate the nose from the face?

- A) transverse
- B) midsagittal
- C) frontal
- D) parasagittal

Answer: C

Explanation:

- A) Transverse sections separate superior from inferior structures.
- B) A midsagittal section would separate structures into equal halves.
- D) Parasagittal sections separate structures in unequal halves.

20) Which type of section would separate the body into equal halves?

- A) transverse
- B) oblique
- C) parasagittal
- D) midsagittal

Answer: D

Explanation:

- A) A transverse section would separate the superior structures from the inferior structures.
- B) An oblique section would separate the body at an angle.
- C) A parasagittal section would separate the body into unequal halves.

21) The ventral body cavity is divided into two major cavities, the superior _____ cavity and the inferior _____ cavity.

- A) thoracic; abdominopelvic
- B) abdominal; pelvic
- C) thoracic; pericardial
- D) mediastinum; abdominal

Answer: A

Explanation:

- B) The abdominal and pelvic cavities make up the abdominopelvic cavity.
- C) The pericardial cavity is part of the thoracic cavity.
- D) The mediastinum is part of the thoracic cavity and the abdominal cavity is part of the abdominopelvic cavity.

22) The layer of the serous membrane that is directly attached to the internal organ is the _____.

- A) parietal layer
- B) peritoneum
- C) pericardium
- D) visceral layer

Answer: D

Explanation:

- A) The parietal layer is the outermost layer of a serous membrane.
- B) The peritoneum is a serous membrane that is found in the abdominal cavity
- C) The pericardium is a serous membrane that surrounds the heart.

23) The serous membrane of the lungs is called the _____.

- A) pleura
- B) periosteum

- C) peritoneum
- D) pericardium

Answer: A

Explanation:

- B) The periosteum is the layer of connective tissue that surrounds bones.
- C) The peritoneum surrounds the digestive organs.
- D) The pericardium surrounds the heart.

24) What is the function of the serous fluid?

- A) to absorb shock when the organs move
- B) increase friction
- C) supplies nutrients to the organs
- D) reduce friction

Answer: D

Explanation:

- A) The function is to allow the two layers to slide over one another when the organ moves.
- B) The fluid allows the layers of membrane to slide over each other with ease.
- C) Blood is the provider of nutrients to the organs.

25) Which two cavities are continuous with each other?

- A) pericardial and pleural
- B) cranial and spinal
- C) the two pleural cavities
- D) thoracic and abdominopelvic

Answer: B

Explanation:

- A) The pericardial and pleural cavities are three separate cavities.
- C) The pleural cavities are two separate cavities.
- D) The thoracic and abdominopelvic cavities are divided by the diaphragm.