CHAPTER 6 QUIZ

Write the letter of the best answer in the space provided.

_____ **1.** When you are lifting a heavy object, avoid using the muscles of your
- **A.** back.
- **B.** arms.
- **C.** shoulders.
- **D.** legs.

_____ **2.** One technique that can greatly reduce the risk of back injuries when lifting and moving patients is
- **A.** not allowing the weight to get close to your body.
- **B.** keeping the lifted weight in close to your body.
- **C.** keeping your feet together.
- **D.** locking out your knees.

_____ **3.** When reaching for a patient or a piece of equipment, an EMT should reach in front of his body no more than _____ inches.
- **A.** 8 to 12
- **B.** 20 to 24
- **C.** 15 to 20
- **D.** 30 to 36

_____ **4.** The lifting technique that should be used by an EMT with one weak leg or one weak ankle is the
- **A.** power lift.
- **B.** back lift.
- **C.** power grip.
- **D.** squat lift.

_____ **5.** When performing a log roll, an EMT should
- **A.** bend over the patient.
- **B.** lean from the hips.
- **C.** twist and pull simultaneously.
- **D.** lean from the waist.

_____ **6.** The preferred device for carrying a conscious medical patient down a flight of stairs is the
- **A.** stair chair.
- **B.** Reeves device.
- **C.** ambulance stretcher.
- **D.** backboard.

_____ **7.** Which one of the conditions below is not one that permits the use of an emergency move?
- **A.** The scene is hazardous.
- **B.** Care of life-threatening injuries requires repositioning.
- **C.** The patient's position is hampering a police investigation.
- **D.** You must reach other patients.

_____ **8.** When your assessment of a patient trapped in wreckage reveals that the patient is suffering from an immediate threat to life, you would order a(n) _____ move.
- **A.** emergency
- **B.** urgent
- **C.** immediate
- **D.** rapid

_____ **9.** The technique used when quickly removing a patient from a vehicle is called
- **A.** log rolling.
- **B.** the long axis drag.
- **C.** rapid extrication.
- **D.** the Stokes move.

_____ **10.** Unresponsive patients with no suspected spinal injuries should be placed in the
- **A.** position of comfort.
- **B.** Fowler position.
- **C.** left lateral recumbent position.
- **D.** Trendelenburg position.

In the Field

Review the following real-life situation. Then answer the questions that follow.

Bob said, "Clay overreacted," and Andy replied, "Yeah, he endangered the patient. Suppose the guy had a broken neck or something! He's just lucky the guy was all right." Overhearing this conversation, you are naturally curious and ask, "What happened?"

The two other EMTs tell you that there was a motor vehicle collision, a high-speed crash, where the cars were found T-boned and the passengers seriously injured. When Clay's ambulance arrived, it was assigned by EMS command to the patients in car B.

After approaching the cars, Clay did a quick scene size-up, including assessing for scene safety. The position in which the cars came to rest after impact made access on the driver's side impossible, so Clay looked into the passenger-side window of car B. He could see that the driver, who appeared unresponsive, had a large cut over his left eyebrow that was bleeding profusely. An initial assessment of the passenger revealed no obvious injuries.

It was at this point that Clay called EMS command and asked for more manpower as well as the heavy rescue team. He then immediately extricated the passenger in order to gain access to the driver. Despite the fact that Clay now had access to the driver and could start patient care, he was unable to extricate the driver without the assistance of heavy rescue. Eventually, the heavy rescue team disentangled the driver from the dash. He was then transported to the trauma center.

1. What did Clay decide to do that Andy and Bob had such a problem with? Did he do the right thing?

2. Which patient moving technique should have been used?

3. If the driver had not appeared to be seriously injured, what should have happened differently?

CHAPTER 6 REVIEW

Write the word or words that best complete each sentence in the space provided.

1. The proper use of your body to facilitate lifting and moving a patient is called _____ _____.
2. A major cause of lower back injuries is lifting and _____ simultaneously.
3. When lifting a patient carrying device, it is best to use a(n) _____ number of people.
4. Never reach more than _____ inches away from your body for equipment.
5. To get the best hold possible on a piece of equipment, use the _____ _____.
6. When faced with a choice of pushing or pulling an object, whenever possible, try to _____.
7. Always keep the weight of an object to be lifted or moved as _____ to the body as possible.
8. To move a heavy object, use the _____, _____, and _____ muscles plus contracted abdominal muscles.
9. When moving patients up or down stairs, always try to use a(n) _____ _____.
10. To help prevent injury when lifting or moving patients or objects, maintain a normal _____ curve of the _____ _____.
11. A(n) _____ move is used when no immediate threat to life exists and the patient can be moved when ready for transport.
12. The greatest danger to the patient in any emergency move is the possibility of aggravating a(n) _____ _____.
13. The _____ _____ is the safest and most comfortable means of transferring a patient.
14. The _____ _____ is a way of transferring a supine patient from a bed to a wheeled stretcher or from any patient carrying device to another.

(continued)

15. _____ is a term that means readying the patient for transport.

16. A patient with chest pain or difficulty breathing should be placed in a(n) _____ _____ _____.

17. During a(n) _____ _____, the patient is stabilized manually before being removed from a vehicle onto a long spine board.

18. A patient with suspected spinal injury should be immobilized on a(n) _____ _____.

19. To slide a patient from an ambulance stretcher to a hospital bed, the EMT would use the _____ _____ method.

20. A pregnant patient in the third trimester should be transported on her _____ _____.

LIFTING AND MOVING: LISTING

1. List four basic principles of body mechanics.

2. List three basic techniques used in lifting and moving patients and equipment.

3. List at least three ways of ensuring good teamwork and performance when teams of rescuers are carrying out lifts and moves.

MOVING PATIENTS: MATCHING

Part I. Write the letter of the patient carrying device in the space provided next to the situation it is appropriate for.

_____ **1.** A conscious patient is found seated in the front seat of a car after a collision.

_____ **2.** An elderly woman has fallen between the toilet and the bathtub.

_____ **3.** A hunter has twisted her knee in the woods.

_____ **4.** A child has fallen out of a tree fort.

_____ **5.** A middle-age male has chest pain in his two-story brownstone house.

A. Long backboard

B. Scoop stretcher

C. Basket stretcher

D. Stair chair

E. Short backboard

Part II. Write the letter of the type of move in the space provided beside the patient move it describes.

_____ **1.** Blanket drag

_____ **2.** Draw sheet method

_____ **3.** Rapid extrication

_____ **4.** Armpit-forearm drag

_____ **5.** Direct carry

A. Emergency move

B. Urgent move

C. Nonurgent move

CHAPTER 7 QUIZ

Write the letter of the best answer in the space provided.

_____ **1.** The functions of the body are called its
- **A.** physiology.
- **B.** kinesiology.
- **C.** pathology.
- **D.** microbiology.

_____ **2.** The structure of the body is referred to as its
- **A.** analogy.
- **B.** anatomy.
- **C.** kinesiology.
- **D.** pathology.

_____ **3.** The normal anatomical position is best described as a person
- **A.** standing, facing forward, palms forward.
- **B.** lying on his back, palms facing down.
- **C.** standing, facing sideways, palms facing thighs.
- **D.** lying on his stomach, palms up.

_____ **4.** An imaginary line down the center of the body that passes between the eyes and extends down through the navel is the
- **A.** plane.
- **B.** outline.
- **C.** midline.
- **D.** quadrant.

_____ **5.** The term that refers to a position closer to the midline is
- **A.** medial.
- **B.** lateral.
- **C.** posterior.
- **D.** anterior.

_____ **6.** An opposite of anterior is
- **A.** posterior.
- **B.** superior.
- **C.** exterior.
- **D.** proximal.

_____ **7.** The lateral recumbent position is also known as the _____ position.
- **A.** Fowler
- **B.** supine
- **C.** recovery
- **D.** Trendelenburg

_____ **8.** The Fowler position is usually achieved by elevating the patient's upper body to a _____ angle.
- **A.** 60° to 90°
- **B.** 45° to 60°
- **C.** 50° to 70°
- **D.** 55° to 90°

_____ **9.** The spinal region that is most prone to injury is the
- **A.** thoracic.
- **B.** cervical.
- **C.** sacral.
- **D.** coccyxal.

_____ **10.** The clavicle is commonly referred to as the
- **A.** collarbone.
- **B.** thigh.
- **C.** hamstring.
- **D.** shin.

_____ **11.** The scapula and acromion are parts of the
- **A.** pelvis.
- **B.** shoulder.
- **C.** ankle.
- **D.** wrist.

(continued)

_____ **12.** Inferiorly, the knee connects with the
- **A.** radius and fibula.
- **B.** femur and tibia.
- **C.** tibia and fibula.
- **D.** ulna and tibia.

_____ **13.** The body contains how many different types of muscle?
- **A.** two
- **B.** three
- **C.** four
- **D.** five

_____ **14.** The structure that carries air downward from the larynx to the lungs is the
- **A.** bronchus.
- **B.** pharynx.
- **C.** epiglottis.
- **D.** trachea.

_____ **15.** The chamber that pumps oxygen-rich blood out of the heart for distribution to the rest of the body is the
- **A.** right atrium.
- **B.** right ventricle.
- **C.** left atrium.
- **D.** left ventricle.

_____ **16.** The major artery leading from the heart is the
- **A.** aorta.
- **B.** pulmonary.
- **C.** carotid.
- **D.** femoral.

_____ **17.** The pulse that is located in the foot is the
- **A.** carotid.
- **B.** femoral.
- **C.** brachial.
- **D.** dorsalis pedis.

_____ **18.** The blood vessels where gases, nutrients, and waste products are exchanged between the body's cells and the bloodstream are the
- **A.** arteries.
- **B.** venules.
- **C.** capillaries.
- **D.** arterioles.

_____ **19.** The elements of the blood that are part of the body's immune system and help to defend against infection are
- **A.** plasma.
- **B.** red blood cells.
- **C.** white blood cells.
- **D.** platelets.

_____ **20.** The pressure created in the arteries when blood is forced out of the heart is referred to as
- **A.** radial.
- **B.** systolic.
- **C.** femoral.
- **D.** diastolic.

_____ **21.** The adequate supply of oxygen and nutrients to the organs and tissues of the body, with the removal of waste products, is called
- **A.** automaticity.
- **B.** conduction.
- **C.** perfusion.
- **D.** autonomicity.

_____ **22.** The central nervous system is made up of the brain and the
- **A.** sensory nerves.
- **B.** spinal cord.
- **C.** motor nerves.
- **D.** endocrines.

_____ **23.** The skin layer rich with blood vessels, nerves, and specialized structures such as sweat glands and sebaceous glands is the
- **A.** epidermis.
- **B.** dermis.
- **C.** subcutaneous layer.
- **D.** arrector pili.

(continued)

_____ **24.** The endocrine system produces chemicals called

A. hormones.
B. carotenes.
C. dioxins.
D. biles.

_____ **25.** Body functions such as digestion, heart rate, and the activities of involuntary muscles are controlled by the _____ nervous system.

A. central
B. peripheral
C. autonomic
D. automatic

In the Field

Review the following real-life situation. Then answer the questions that follow.

You and your crew are dispatched for a call about a fall at a home. As the ambulance pulls up to a single-family house, you survey the scene. A truck for AAA Roofers is parked in the driveway. There is scaffolding at the east end of the house. At its base, two men are kneeling over a third that is lying supine on the ground. The scene appears to be safe, so you grab your jump kit and approach. As you do, one of the men runs over to you and tells you that the crew had been removing old shingles from the roof when David lost his footing and fell about 18 feet to the ground.

Your patient is not conscious when you begin your initial assessment. After determining that he is breathing adequately, you note a large laceration on the left side of the patient's lower jaw. You also note that an area on the outside of the patient's left arm, just above the elbow, is swollen and deformed. There is a large laceration on the front of the patient's upper left thigh just above the kneecap, which is bleeding profusely.

1. Which of the body's major systems do you suspect may have been injured as a result of this accident?

2. Describe the location of the injury on the patient's head.

3. Describe the location of the injury to the patient's arm.

4. Describe the location of the injury to the patient's lower extremity.

CHAPTER 7 REVIEW

Write the word or words that best complete each sentence in the space provided.

1. Use of the _____ _____ position ensures that health care providers will employ the same point of reference when terms of direction and location are used.
2. A(n) _____ _____ is the kind of flat surface that would be formed if you sliced straight through an imaginary human body.
3. The _____ line is one that is drawn vertically from the middle of the armpit to the ankle.
4. The elbow is _____ to the shoulder because the elbow is farther away from the torso than the shoulder.
5. Anatomically speaking, the nose is _____ to the mouth.
6. When a patient is lying on his back with legs elevated higher than the head and body on an inclined plane, he is in the _____ position.
7. Bones are connected to bones by _____, while muscles are connected to bones by _____.
8. The top, back, and sides of the skull plus the forehead make up the _____.
9. The spinal column is made up of blocks of bone called _____.
10. The _____ is composed of the ribs, the sternum, and a portion of the spine.
11. The _____ _____ consists of the acetabulum and the ball at the head of the femur.
12. The elbow is an example of a(n) _____ joint.
13. The property that allows the heart to generate and conduct electrical impulses on its own is _____.
14. During respiration, gas exchange with the bloodstream takes place in the small sacs called _____.
15. The section of the respiratory cycle in which the intercostal muscles and diaphragm relax is known as _____.

(continued)

16. The respiratory anatomy of infants and children differs from that of adults in that the _____ is narrower, softer, and more flexible.

17. Because the chest walls of infants and children are softer, they rely more on the _____ for breathing.

18. The upper chambers of the heart are the _____, while the lower chambers are the _____.

19. The _____ _____ carry oxygenated blood from the lungs to the heart.

20. The elements of the blood that are essential to the formation of blood clots are _____.

21. When the left ventricle of the heart is relaxing and refilling, the pressure remaining in the arteries is the _____ blood pressure.

22. _____ and _____ are two names for the condition that results when adequate supplies of oxygen are not delivered to and waste products are not removed from all the body's tissues.

23. The peripheral nervous system is made up of nerves located outside of the _____ and the _____ _____.

24. The layers of the skin are the _____, the _____, and the _____ _____.

25. The _____ _____ produces chemicals called hormones that help to regulate many body activities and functions.

Anatomy and Physiology: True or False

Indicate if the following statements are true or false by writing T or F in the space provided.

_____ **1.** Anatomy refers to the body's structures and functions.

_____ **2.** The directions "left" and "right" always refer to the EMT's left and right.

_____ **3.** The imaginary midline divides the body into upper and lower halves.

_____ **4.** The term "lateral" refers to a position farther away from the midline.

_____ **5.** Anatomically speaking, the elbow is distal to the hand.

_____ **6.** There is one midclavicular line centered between the two clavicles.

_____ **7.** In the Fowler position, a patient is lying with the upper body elevated.

_____ **8.** The first 12 vertebrae form the sacral spine.

_____ **9.** The ulna is the inner and larger bone of the lower leg.

_____ **10.** The heart muscle receives its blood supply through the coronary artery system.

_____ **11.** The cricoid cartilage forms the lower portion of the trachea.

_____ **12.** The left ventricle pumps blood to the aorta.

_____ **13.** The cardiac conduction system delivers waste gases to the lungs where they can be expelled from the body.

_____ **14.** The femoral artery is the main source of blood supply to the upper arm.

_____ **15.** The primary function of the red blood cells is to carry oxygen to the body cells and carbon dioxide away from the cells.

_____ **16.** In a blood pressure reading of 120/80, the 120 refers to the diastolic pressure while the 80 refers to the systolic pressure.

_____ **17.** A pulse can be felt at the point where a vein passes over a bone near the skin surface.

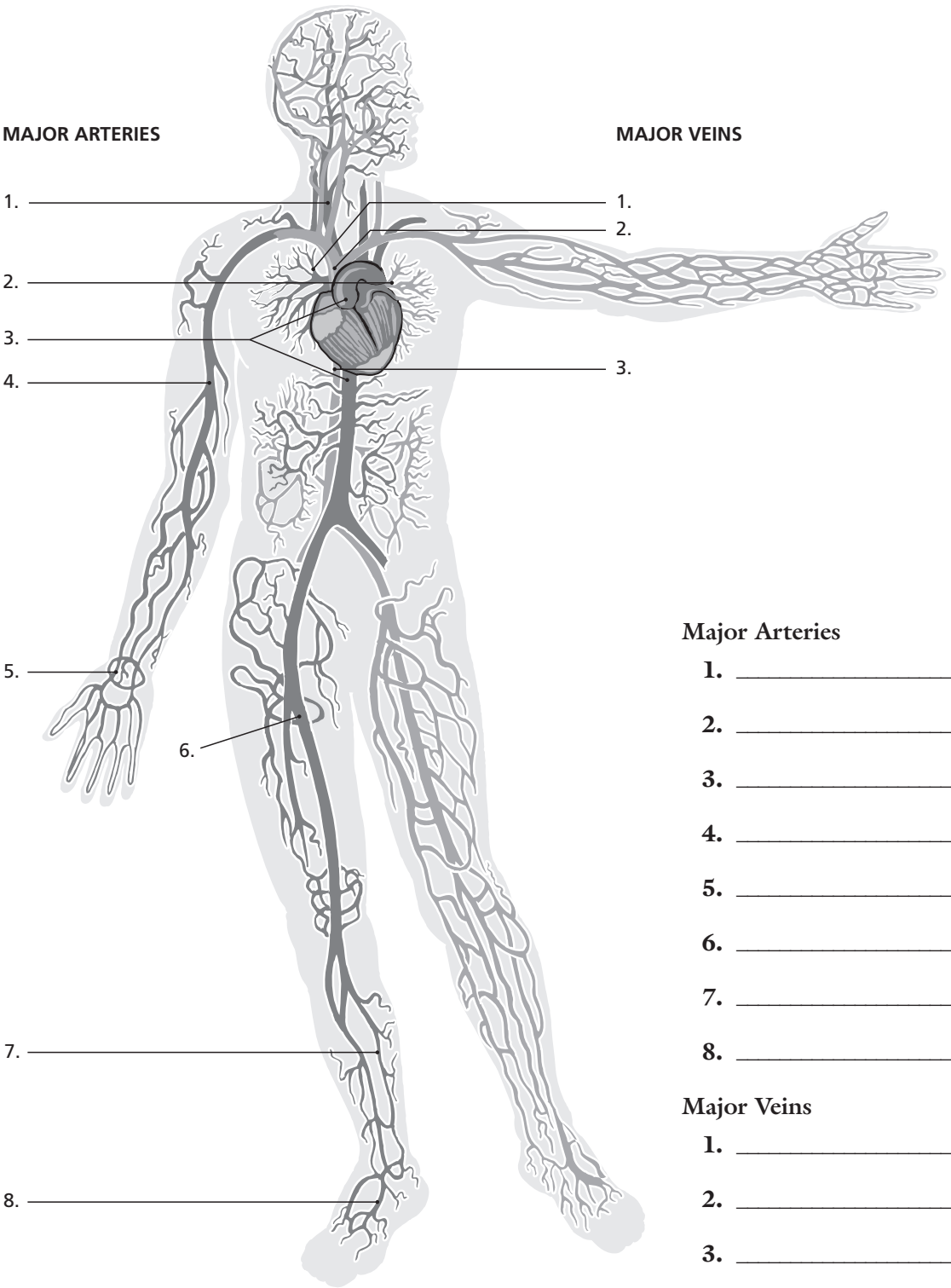
_____ **18.** The skin plays an important part in regulating the body's temperature.

_____ **19.** The epidermis contains the hair follicles and sweat glands.

_____ **20.** The thyroid gland makes insulin for the metabolism of calcium.

THE CIRCULATORY SYSTEM

Demonstrate your knowledge of the body's circulatory system by correctly labeling its major arteries and veins on the diagram below.



Major Arteries

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

Major Veins

1. _____

2. _____

3. _____

CHAPTER 8 QUIZ

Write the letter of the best answer in the space provided.

_____ **1.** The term aerobic means
- **A.** with oxygen.
- **B.** without oxygen.
- **C.** with glucose.
- **D.** without glucose.

_____ **2.** Increased metabolism causes a(n)
- **A.** increased respiratory rate.
- **B.** decreased respiratory rate.
- **C.** decreased pulse rate.
- **D.** decreased blood pressure.

_____ **3.** In anerobic metabolism, there are _____ moles of ATP.
- **A.** 1
- **B.** 3
- **C.** 4
- **D.** 2

_____ **4.** Sodium is primarily located
- **A.** inside the cell.
- **B.** outside the cell.
- **C.** equally inside the cell and outside the cell.
- **D.** only in red blood cells.

_____ **5.** Ambient air at sea level contains _____ percent of oxygen.
- **A.** 21
- **B.** 100
- **C.** 50
- **D.** 79

_____ **6.** The nasopharynx opens into the
- **A.** esophagus.
- **B.** larynx.
- **C.** pharynx.
- **D.** epiglottis.

_____ **7.** Boyle law states that an increase in pressure will
- **A.** increase the volume of gas.
- **B.** decrease the volume of gas.
- **C.** increase the blood pressure.
- **D.** decrease the blood pressure.

_____ **8.** Sympathetic stimulation of the vessels causes
- **A.** vasodilation.
- **B.** no change within the vessels.
- **C.** decreased blood pressure.
- **D.** vasoconstriction.

_____ **9.** On inhalation, the pressure within the chest is _____ compared to the atmospheric pressure.
- **A.** negative
- **B.** positive
- **C.** equal
- **D.** initially positive then becomes negative

_____ **10.** The volume of air breathed in with each individual breath is
- **A.** minute volume.
- **B.** tidal volume.
- **C.** mass volume.
- **D.** minute ventilation.

_____ **11.** The amount of air moved in and out of the alveoli in 1 minute is
- **A.** minute ventilation.
- **B.** respiratory ventilation.
- **C.** alveolar ventilation.
- **D.** dead air space.

(continued)

_____ **12.** Chemoreceptors monitor all of the following *except*
- **A.** carbon dioxide levels.
- **B.** pH levels.
- **C.** oxygen levels.
- **D.** potassium levels.

_____ **13.** All of the following are lung receptors *except*
- **A.** cardiac receptors.
- **B.** irritant receptors.
- **C.** stretch receptors.
- **D.** j-receptors.

_____ **14.** The volume of blood ejected by the left ventricle with each contraction is
- **A.** blood volume.
- **B.** stroke volume.
- **C.** cardiac output.
- **D.** blood pressure.

_____ **15.** How many ion sites does a hemoglobin have?
- **A.** 1
- **B.** 4
- **C.** 3
- **D.** 8

_____ **16.** Carbon dioxide is transported in the blood in how many different ways?
- **A.** 2
- **B.** 1
- **C.** 3
- **D.** 4

_____ **17.** Pulse pressure is the difference between
- **A.** systolic and diastolic blood pressure.
- **B.** peripheral and central pulses.
- **C.** systolic blood pressure and pulse.
- **D.** the pressure in the arteries with each contraction of the left ventricle.

_____ **18.** Water comprises what percentage of plasma?
- **A.** 91 percent
- **B.** 70 percent
- **C.** 50 percent
- **D.** none of the above

_____ **19.** A normal cardiac output per minute for an adult at rest is
- **A.** 10 liters.
- **B.** 20 liters.
- **C.** 5 liters.
- **D.** 7 liters.

_____ **20.** The primary pacemaker of the heart is the
- **A.** sinoatrial node.
- **B.** atrioventricular node.
- **C.** left atrium.
- **D.** none of the above.

Chapter 8 Review

Write the word or words that best complete each sentence in the space provided.

1. Blood pressure is monitored and regulated by both _____ and _____.
2. An increase in cardiac output will _____ blood pressure.
3. Pulse pressure is the difference between the _____ and _____ blood pressure reading.
4. Afterload is the resistance in the _____ that must be overcome by the contraction of the left ventricle to eject the blood.
5. The _____ _____ is defined as the number of times the heart contracts in a minute.
6. _____ _____ is the force inside the vessel or capillary bed generated by the concentration of the heart and blood pressure.
7. The average adult has _____ milliliters of blood for every kilogram of mass.
8. After inhalation the alveoli have taken in _____-_____ air that contains very little carbon dioxide.
9. Once an oxygen molecule binds with hemoglobin, it is referred to as _____.
10. If the pressure in the alveolus exceeds the blood pressure in the capillary bed, blood flow through the capillary _____.

PATHOPHYSIOLOGY: MATCHING

Write the letter of the term in the space provided next to the appropriate description.

_____ **1.** Energy source required for cells to carry out their functions

_____ **2.** Without oxygen

_____ **3.** Primary intracellular ion

_____ **4.** Fraction of delivered oxygen

_____ **5.** Structure that contains the vocal cords

_____ **6.** A passive process requiring no energy

_____ **7.** Anatomical area of the lungs where no air exchange occurs

_____ **8.** The volume of blood ejected by the left ventricle with each contraction

_____ **9.** The resistance to blood flow through a vessel

_____ **10.** The flow of blood through the smallest blood vessels

A. larynx

B. anaerobic

C. ATP

D. potassium

E. systemic vascular resistance

F. FDO_2

G. microcirculation

H. exhalation

I. stroke volume

J. dead space

Pathophysiology: True or False

Indicate if the following statements are true or false by writing T or F in the space provided.

_____ **1.** Ambient air contains 79 percent nitrogen.

_____ **2.** FiO_2 pertains to breathing patients only.

_____ **3.** The epiglottis protects the oropharynx.

_____ **4.** Minute ventilation is the same as minute volume.

_____ **5.** Hypercarbia is the buildup of carbon dioxide in the blood.

_____ **6.** 23 percent of carbon dioxide attaches to the hemoglobin.

_____ **7.** 85 percent of blood is plasma.

_____ **8.** The majority of the blood is housed in the venous system.

_____ **9.** Oncotic pressure is responsible for keeping fluid outside the vessels.

_____ **10.** The sinoatrial node is the primary pacemaker of the heart.

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8. After inhalation the alveoli have taken in _____-_____ air that contains very little carbon dioxide.
9. Once an oxygen molecule binds with hemoglobin, it is referred to as _____.
10. If the pressure in the alveolus exceeds the blood pressure in the capillary bed, blood flow through the capillary _____.

PATHOPHYSIOLOGY: MATCHING

Write the letter of the term in the space provided next to the appropriate description.

_____ **1.** Energy source required for cells to carry out their functions

_____ **2.** Without oxygen

_____ **3.** Primary intracellular ion

_____ **4.** Fraction of delivered oxygen

_____ **5.** Structure that contains the vocal cords

_____ **6.** A passive process requiring no energy

_____ **7.** Anatomical area of the lungs where no air exchange occurs

_____ **8.** The volume of blood ejected by the left ventricle with each contraction

_____ **9.** The resistance to blood flow through a vessel

_____ **10.** The flow of blood through the smallest blood vessels

A. larynx

B. anaerobic

C. ATP

D. potassium

E. systemic vascular resistance

F. FDO_2

G. microcirculation

H. exhalation

I. stroke volume

J. dead space

Pathophysiology: True or False

Indicate if the following statements are true or false by writing T or F in the space provided.

_____ **1.** Ambient air contains 79 percent nitrogen.

_____ **2.** FiO_2 pertains to breathing patients only.

_____ **3.** The epiglottis protects the oropharynx.

_____ **4.** Minute ventilation is the same as minute volume.

_____ **5.** Hypercarbia is the buildup of carbon dioxide in the blood.

_____ **6.** 23 percent of carbon dioxide attaches to the hemoglobin.

_____ **7.** 85 percent of blood is plasma.

_____ **8.** The majority of the blood is housed in the venous system.

_____ **9.** Oncotic pressure is responsible for keeping fluid outside the vessels.

_____ **10.** The sinoatrial node is the primary pacemaker of the heart.

CHAPTER 9 QUIZ

Write the letter of the best answer in the space provided.

_____ **1.** Infancy refers to a child who is
- **A.** newborn to 1 year of age.
- **B.** 1 year of age to 2 years of age.
- **C.** newborn to 1 month of age.
- **D.** newborn to 6 months of age.

_____ **2.** At 1 year of age the normal respiratory rate is
- **A.** 20 to 30 breaths per minute.
- **B.** 20 to 40 breaths per minute.
- **C.** 12 to 20 breaths per minute.
- **D.** 30 to 40 breaths per minute.

_____ **3.** At 2 months of age the child will do all the following *except*
- **A.** track objects with his eyes.
- **B.** recognize familiar faces.
- **C.** grasp and shake hand toys.
- **D.** display primary emotions and facial expressions.

_____ **4.** The normal heart rate range for a child 3 to 5 years of age is
- **A.** 100 to 120.
- **B.** 80 to 120.
- **C.** 60 to 90.
- **D.** 130 to 150.

_____ **5.** The normal systolic blood pressure for a child between 6 and 12 years of age is
- **A.** 80 to 120.
- **B.** 120 to 130.
- **C.** 70 to 100.
- **D.** 70 to 110.

_____ **6.** At what age are males mostly done growing?
- **A.** 15
- **B.** 16
- **C.** 18
- **D.** 21

_____ **7.** Early adulthood is defined as what age range?
- **A.** 16 to 21
- **B.** 17 to 21
- **C.** 21 to 30
- **D.** 20 to 40

_____ **8.** The leading cause of death for patients in early adulthood is
- **A.** heart problems.
- **B.** strokes.
- **C.** sexually transmitted diseases.
- **D.** accidents.

_____ **9.** In what developmental phase of life do cardiac problems become a concern?
- **A.** early adulthood
- **B.** middle adulthood
- **C.** late adulthood
- **D.** none of the above

_____ **10.** At what age is a person said to be in late adulthood?
- **A.** 50
- **B.** 70
- **C.** 61
- **D.** 65

In the Field

Review the following real-life situations. Then answer the questions that follow.

(A) You are treating an 8-year-old male patient who is complaining of trouble breathing. The patient's mother tells you the patient has a history of asthma and has taken his medicine without relief. While you are assessing your patient, you note he has inspiratory and expiratory wheezing to both lungs. You place the patient on oxygen and continue with the rest of your assessment.

1. How does your patient view EMTs and what are his expectations?

2. What are the normal vital signs of a patient this age?

(B) You are called to the scene of a bicycle accident. Upon your arrival you find a 22-year-old male lying on the ground complaining of head pain. Bystanders tell you the patient was riding his bicycle without a helmet when he tried to jump over a curb. During your assessment you find the patient has a large laceration to the back of his head. You and your partner bandage the wound, fully immobilize the patient to a long backboard, and transport the patient to the hospital without any incident.

1. Why are patients in this age group more likely to be injured or killed in an accident?

2. What are the normal vital signs for patients in this age group?

(continued)

(C) While taking care of an 85-year-old male patient who is complaining of chest pain, you notice the patient is reluctant to tell you that he has been noncompliant with his medications for the last month.

1. What changes occur in the body that would cause patients of this age to be noncompliant with their medications?

CHAPTER 9 REVIEW

Write the word or words that best complete each sentence in the space provided.

1. While assessing the skull of an infant, the posterior _____ will fuse at _____ _____ of age.
2. An infant's head accounts for _____ percent of his total body weight.
3. Until 4 weeks of life, infants primarily breathe through their _____.
4. The term "toddler" refers to a child who is between _____ and _____ months of age.
5. Toddlers and school-age children begin to develop _____ immunity.
6. By preschool age the child's _____ has reached 90 percent of its adult weight.
7. School-age children are those who are between _____ and _____ years of age.
8. Girls usually begin _____ around age 10.
9. Most adolescents would prefer if their parents were _____ _____ during the patient interview.
10. Depression and suicide are _____ common among adolescents than any other age group.
11. Patients in early adulthood will experience the highest levels of _____ stress.
12. During middle adulthood cardiac output _____.
13. Normally, women in their late 40s and 50s will go through _____.
14. In late adulthood, the _____ _____ within the cardiovascular system thicken.

Life Span Development: Listing

1. List at least four of the activities that a 2-month-old infant should be able to do.

2. List three anatomical parts of the respiratory system that will change during late adulthood.

Life Span Development: True or False

Indicate if the following statements are true or to false by writing T or F in the space provided.

_____ **1.** Rapid respirations in an infant can lead to heat loss.

_____ **2.** Passive immunity is retained through the first 6 months of life.

_____ **3.** Infants have instantaneous and involuntary movements.

_____ **4.** Infants are capable of localizing pain.

_____ **5.** Preschoolers are between 4 and 7 years of age.

_____ **6.** By age 3 children are able to walk alone.

_____ **7.** By age 5 a child knows his address.

_____ **8.** The normal heart rate for an adolescent is between 55 to 95 beats per minute.

_____ **9.** Antisocial behavior peaks around fifth or sixth grade.

_____ **10.** Childbirth is most common during middle adulthood.

_____ **11.** Adults in middle adulthood are more susceptible to diabetes.

_____ **12.** The maximum life span for a human being is 120 years.

CHAPTER 10 QUIZ

Write the letter of the best answer in the space provided.

_____ **1.** The first step of emergency care in the patient with inadequate breathing is
- **A.** checking for the patient's pulse.
- **B.** manually stabilizing the cervical spine.
- **C.** opening and maintaining the patient's airway.
- **D.** looking for and controlling severe bleeding.

_____ **2.** Inadequate breathing or inadequate blood circulation can cause
- **A.** kyphosis.
- **B.** hyperglycemia.
- **C.** lordosis.
- **D.** hypoxia.

_____ **3.** Signs of inadequate breathing include all of the following *except*
- **A.** retractions above the clavicles, between ribs, and below the rib cage.
- **B.** cyanosis of the lips, ear lobes, or nail beds.
- **C.** bradypnea.
- **D.** pink skin and respiratory rate between 10 and 24 per minute.

_____ **4.** Stimulation of the back of a patient's throat when suctioning may cause
- **A.** convulsions.
- **B.** a slowed heart rate.
- **C.** unequal pupils.
- **D.** cyanosis.

_____ **5.** A 24-year-old female patient has fallen from the roof of her house and is unconscious. The best method of opening her airway is the _____ maneuver.
- **A.** head-tilt, chin-lift
- **B.** jaw-thrust
- **C.** head-tilt, neck-lift
- **D.** tongue-jaw lift

_____ **6.** Methods of artificial ventilation, in order of preference, are
1. one-person bag-valve mask.
2. mouth-to-mask.
3. flow-restricted, oxygen-powered ventilation device.
4. two-person bag-valve mask.

- **A.** 2, 4, 3, and 1
- **B.** 2, 4, 1, and 3
- **C.** 1, 4, 3, and 2
- **D.** 4, 3, 1, and 2

_____ **7.** Signs of inadequate artificial ventilation of an adult patient include
- **A.** a heart rate that returns to normal.
- **B.** failure of the patient's skin color to improve.
- **C.** the patient's chest rising and falling with each ventilation.
- **D.** a ventilation rate of 10–12 per minute.

_____ **8.** When high-flow, high-concentration oxygen is attached to a bag-valve mask, the concentration of oxygen delivered to the patient is approximately
- **A.** 16 percent.
- **B.** 24 percent.
- **C.** 100 percent.
- **D.** 90 percent.

(continued)

_____ **9.** All of the following are important features of bag-valve-mask systems *except* a
- **A.** non-jam valve system.
- **B.** 15/22 mm respiratory fitting.
- **C.** nonrebreathing valve.
- **D.** pop-off valve.

_____ **10.** The most difficult part of delivering BVM artificial ventilations for a single rescuer is
- **A.** obtaining an adequate mask seal.
- **B.** squeezing the bag completely.
- **C.** maintaining an open airway.
- **D.** preventing the patient from vomiting.

_____ **11.** Oropharyngeal airways can be used on unconscious patients, *except* those who
- **A.** are in cardiac arrest.
- **B.** have a gag reflex.
- **C.** are younger than 8 years.
- **D.** have a contagious respiratory disease.

_____ **12.** Because the oropharyngeal airway is likely to stimulate the patient's gag reflex, the rescuer should
- **A.** use only nasal airways.
- **B.** use the next smaller size.
- **C.** be prepared to suction.
- **D.** not use one.

_____ **13.** The nasopharyngeal airway is often utilized because it
- **A.** comes in more sizes than the oropharyngeal airway.
- **B.** often does not stimulate the patient's gag reflex.
- **C.** can be used even if clear (CSF) fluid is seen in the nose or ears.
- **D.** is made of rigid, clear plastic, which is less likely to cause bleeding.

_____ **14.** Which of the following is *true* regarding suctioning a patient's airway?
- **A.** Never suction the airway for longer than 15 seconds.
- **B.** Suction only as you insert the catheter into the mouth.
- **C.** BSI precautions are not important if there is no visible blood.
- **D.** You may hyperventilate a patient before and after suctioning.

_____ **15.** One advantage of a "tonsil tip" catheter over a "French" catheter is that it
- **A.** is flexible and can be inserted deeper into the pharynx.
- **B.** is more effective for particulate matter.
- **C.** can suction the nose.
- **D.** can be inserted well beyond the base of the tongue.

_____ **16.** Before suctioning, a patient who is artificially ventilated should be
- **A.** placed in a position of comfort.
- **B.** hypoventilated.
- **C.** hyperventilated.
- **D.** fully immobilized.

_____ **17.** A nasal cannula should be used to deliver oxygen to a patient who
- **A.** has a chronic lung disease.
- **B.** requires a high flow and high concentration of oxygen.
- **C.** will not tolerate a nonrebreather mask.
- **D.** uses a cannula with a home oxygen system.

(continued)

_____ **18.** Administer oxygen to any patient who needs supplemental oxygen *unless*
- **A.** the patient is an infant.
- **B.** the patient has COPD.
- **C.** medical direction instructs otherwise.
- **D.** the patient has TB.

_____ **19.** Oxygen cylinder sizes vary, but all are considered "full" when pressure is equal to _____ psi.
- **A.** 1,000
- **B.** 1,500
- **C.** 2,000
- **D.** 2,500

_____ **20.** An insufficiency in the supply of oxygen to the body's tissues is called
- **A.** hypoxia.
- **B.** hyperventilation.
- **C.** respiratory compromise.
- **D.** bronchoconstriction.

_____ **21.** The use of which of the following methods is contraindicated with children?
- **A.** mouth-to-mask
- **B.** flow-restricted, oxygen-powered ventilation device
- **C.** two-person bag-valve mask
- **D.** one-person bag-valve mask

_____ **22.** To ease insertion, nasopharyngeal airways must be lubricated with
- **A.** lubricant with petroleum jelly.
- **B.** any petroleum-based lubricant, such as WD-40.
- **C.** any silicone-based lubricant.
- **D.** any water-soluble lubricant.

_____ **23.** When a patient who has a full set of dentures needs ventilations
- **A.** leave the dentures in place if they are secure and then ventilate.
- **B.** remove the dentures in all circumstances before ventilating.
- **C.** an endotracheal intubation must be performed.
- **D.** an ATV should be used.

_____ **24.** A suction device, whether portable or mounted, must generate a vacuum of _____ mmHg.
- **A.** 100
- **B.** 200
- **C.** 300
- **D.** 400

_____ **25.** When a nasal cannula is used, the flow rate should be no more than _____ liters per minute.
- **A.** 1 to 6
- **B.** 6 to 10
- **C.** 10 to 12
- **D.** 12 to 14

In the Field

Review the following real-life situation. Then answer the questions that follow.

You and your EMT partner, Cindy, are assigned to a suburban station on a cold February morning. At 0613, you are dispatched to an apartment building for a breathing problem. You arrive at the building about 7 minutes later and are met by the patient's wife, who is quite anxious. You put on your personal protective equipment, get the ambulance cot and your equipment, and follow the woman to the sixth floor of the building. On the way up in the elevator, the patient's wife tells you her husband, Mike, is having a very hard time breathing, and he looks a little blue.

You arrive at the apartment and find your patient, a 23-year-old male, seated in a chair, leaning forward on his legs. His skin is pale, his lips are cyanotic, and you hear wheezing as he breathes. You introduce yourself and Cindy to the patient as you begin assessing his condition. It is obvious he is quite anxious, so you attempt to calm him as you explain what you are doing. Mike cannot speak in full sentences but tells you that he has had asthma for about 15 years. He usually uses an inhaler but ran out of the medicine about 5 days ago. His breathing got worse 2 days ago, when the elevator was not working and he had to climb up the five flights to his apartment. You obtain a pulse ox reading and place the patient on oxygen, using a nonrebreather mask at 15 liters per minute. Cindy begins taking Mike's vital signs. His blood pressure is 96/74; his pulse is 110; and his respirations are 28 per minute. You decide that Mike needs immediate transport to the hospital, about 25 minutes away. As you get Mike placed on your cot, sitting up for comfort, you use your portable radio to request an ALS rendezvous.

1. As you begin patient contact, describe your initial impression, and explain why you feel this way.

2. Is this patient considered a high priority for immediate transport? Explain your rationale.

3. What signs and symptoms indicated to you that the patient was having severe respiratory difficulty?

4. Why was an ALS rendezvous requested for this patient?

CHAPTER 10 REVIEW

Write the word or words that best complete each sentence in the space provided.

1. The most basic components of emergency medical care are to establish and maintain a(n) _____, ensure effective ventilation, and provide oxygen to the patient.
2. The EMT's chief responsibilities are finding and correcting immediately all _____ - _____ problems.
3. Respiratory _____ occurs when respiratory rate and/or tidal volume is insufficient.
4. When breathing stops completely, the patient is in _____ _____.
5. Minimal or uneven chest movements, diminished breath sounds, and noisy breathing are signs of _____ _____.
6. A blue or gray color to the patient's skin or nail beds is called _____, which is a sign of breathing difficulty.
7. The procedure commonly used for opening the airway of a patient when no trauma is suspected is the _____ - _____, _____ - _____ maneuver.
8. The two passageways found at the lower end of the pharynx are the _____ and _____.
9. The trachea is protected by a small flap of tissue called the _____.
10. When one rescuer is using a bag-valve-mask device, the most difficult part of delivering artificial ventilations is maintaining an _____ _____.
11. When delivering artificial ventilations to a nonbreathing patient, give one ventilation every _____ seconds to an adult and one every _____ seconds to a child.
12. _____ is the process by which the blood and cells become saturated with oxygen.
13. The most common cause of an obstructed airway in the unresponsive patient is the _____.

(continued)

14. Use an oropharyngeal airway for all unresponsive patients who do not exhibit a(n) _____ _____.

15. A properly sized oropharyngeal airway should extend the distance from the level of the patient's _____ _____ to the angle of the patient's _____.

16. Lubricate the outside of a nasopharyngeal airway with a sterile _____-soluble lubricant.

17. _____ is an excessive rapid breathing rate and may indicate inadequate oxygenation and breathing.

18. It is possible to add moisture to oxygen by adding a(n) _____ to the regulator.

19. A nonrebreather mask is the EMT's best way to deliver high flows and high concentrations of oxygen to a breathing patient because it can provide concentrations of oxygen ranging from _____ to _____ percent.

20. A surgical opening into the neck and trachea, also known as a tracheostomy, is a(n) _____.

AIRWAY: LISTING

1. List four factors of breathing that must be assessed when determining whether a patient's breathing is adequate.

2. List and describe four sounds that may indicate airway obstruction.

3. List eight signs of inadequate breathing.

4. List, in order of preference, four methods of providing positive pressure ventilations to patients.

Airway: True or False

Indicate if the following statements are true or false by writing T or F in the space provided.

_____ **1.** The trachea is the passageway through which food travels into the stomach.

_____ **2.** The nose, mouth, pharynx, and trachea are all parts of the respiratory system.

_____ **3.** During mouth-to-mask ventilations of infant and child patients, each breath should be delivered over 2 to 2.5 seconds.

_____ **4.** A pinkish skin coloration is one sign of adequate breathing.

_____ **5.** Excessive use of neck and intercostal muscles is a sign of inadequate breathing in an adult.

_____ **6.** Cyanosis is the term used to describe a bluish skin color.

_____ **7.** A nonrebreather mask is the preferred method for delivering supplemental oxygen to patients in the prehospital setting.

_____ **8.** Head, neck, or spinal injury should be suspected in any unconscious trauma patient.

_____ **9.** The head-tilt, chin-lift maneuver should be used to open the airway of a patient with a suspected neck injury.

_____ **10.** When using the head-tilt, chin-lift maneuver to open a patient's airway, place your fingertips on the bony part of the chin, not the soft tissues under the lower jaw.

_____ **11.** When opening an unconscious patient's airway, you may need to insert your thumb into the patient's mouth.

_____ **12.** When using the jaw-thrust maneuver to open a patient's airway, stabilize the patient's head with your knees.

_____ **13.** Use of a pocket mask with supplemental oxygen to ventilate a patient can deliver a higher tidal volume of air than use of a bag-valve-mask device.

_____ **14.** A pop-off valve is an undesirable feature of some older bag-valve-mask devices.

_____ **15.** BVMs should have a standard 15/22 mm connection to properly fit face masks and endotracheal tubes.

_____ **16.** If a nasopharyngeal airway is too long, it can enter the esophagus and cause massive gastric distension.

_____ **17.** With a BVM device, a mask seal can more easily be maintained when ventilations are performed by two rescuers.

_____ **18.** Nonbreathing adult patients should be ventilated at a rate of 10–12 times per minute.

(continued)

_____ **19.** If the chest does not rise and fall during BVM ventilation, you should reposition the head to ensure an open airway.

_____ **20.** Using a nasal cannula with supplemental oxygen will deliver nearly 100 percent oxygen concentration to your patient.

_____ **21.** A pediatric-sized BVM mask can be used to establish a seal around a stoma.

_____ **22.** Flow-restricted, oxygen-powered ventilation devices may have an audible alarm when the relief valve is activated.

_____ **23.** If a patient rejects an oropharyngeal airway at your first attempt, reopen the airway and insert it more aggressively.

_____ **24.** To ease insertion of a nasopharyngeal airway, it should be lubricated with petroleum jelly.

_____ **25.** The EMT should never suction a patient for more than 5 seconds at a time.

AIRWAY: MATCHING

Write the letter of the term in the space next to the appropriate description below.

_____ **1.** The active process of breathing air into the lungs

_____ **2.** A small flap of tissue that closes over the trachea during swallowing

_____ **3.** The portion of the pharynx that extends from the nostrils to the soft palate

_____ **4.** On both sides

_____ **5.** Inflation of the stomach

_____ **6.** A bluish color of the skin and mucous membranes that indicates poor oxygenation of tissue

_____ **7.** Innermost covering of the lungs

_____ **8.** A reduction of oxygen delivery to the tissues

_____ **9.** A breathing rate that is faster than the normal rate

_____ **10.** A breathing rate that is slower than the normal rate

_____ **11.** A positive-pressure ventilation device that delivers ventilations automatically

_____ **12.** A harsh, high-pitched sound heard on inspiration; indicates swelling of the larynx

_____ **13.** The passive process of breathing air out of the lungs

_____ **14.** The major muscle of respiration, which separates the chest cavity from the abdominal cavity

_____ **15.** Describing the muscles between the ribs

A. ATV

B. bilaterally

C. bradypnea

D. cyanosis

E. diaphragm

F. epiglottis

G. exhalation

H. gastric distension

I. hypoxia

J. inhalation

K. intercostal

L. nasopharynx

M. tachypnea

N. stridor

O. visceral pleura