1. The wall of the left ventricle is _____ than the wall of the right ventricle because the left ventricle _____.
   a. thicker; must pump blood to the entire body
   b. thicker; must pump more blood than the right ventricle
   c. thinner; pumps less blood than the right ventricle
   d. thinner; pumps oxygenated blood which requires less work than pumping deoxygenated blood

2. Which of these joints is least movable?
   a. fibrous
   b. synostosis
   c. symphysis
   d. diarthrosis
   e. cartilaginous

3. Which of the following is not a component of the appendicular skeleton?
   a. upper limb bones
   b. lower limb bones
   c. the pectoral girdle
   d. the pelvic girdle
   e. ribs

4. Which of the following types of muscle tissue is voluntarily controlled?
   a. skeletal
   b. visceral
   c. smooth
   d. cardiac
   e. b & c

5. Which statement most accurately describes veins?
   a. All ultimately empty into the inferior vena cava.
   b. They always carry deoxygenated blood.
   c. Their tunica interna is thicker than an artery’s.
   d. Their tunica externa is thicker than an artery’s.
   e. Collectively, they typically hold more of the body’s blood than do arteries.

6. All other factors remaining constant, dilation of a metarteriole would _____.
   a. increase blood flow into the receiving venule
   b. increase blood flow into its associated capillary bed
   c. decrease blood flow into its thoroughfare channel
   d. a & b
   e. a, b, & c

7. The only secondary lymphatic organ with both afferent and efferent lymphatic vessels is _____.
   a. the spleen
   b. a lymph node
   c. a tonsil
   d. the thymus
   e. red bone marrow
8. The coronary circulation _____.
   a. is characterized by multiple arterial anastomoses
   b. receives blood directly from the base of the pulmonary trunk
   c. returns its blood to the left atrium
   d. a & b
   e. a, b, & c

9. Repair of a ventricular septal defect (a hole in the interventricular septum) requires open-heart surgery. Which of the following correctly sequences the structures the surgeon must penetrate to reach the right ventricle and close the opening?
   a. fibrous pericardium, myocardium, parietal serous pericardium, endocardium, epicardium
   b. epicardium, fibrous pericardium, myocardium, parietal serous pericardium, endocardium, epicardium
   c. visceral serous pericardium, fibrous pericardium, myocardium, endocardium
   d. fibrous pericardium, serous pericardium, myocardium, endocardium
   e. parietal pericardium, visceral serous pericardium, fibrous pericardium, myocardium, endocardium

10. Abduction at the knee joint is prevented primarily by the _____.
    a. oblique popliteal ligament
    b. arcuate popliteal ligament
    c. medial collateral ligament
    d. lateral collateral ligament
    e. patellar ligament

11. Backward gliding of the tibia on the femur is prevented primarily by the _____.
    a. anterior cruciate ligament
    b. posterior cruciate ligament
    c. lateral meniscus
    d. medial meniscus
    e. prepatellar bursa

12. Excessive lateral curvature of the vertebral column is termed _____.
    a. stenosis
    b. lordosis
    c. kyphosis
    d. scoliosis
    e. leanoverosis

13. Primary vertebral curves are _____, whereas secondary curves are _____.
    a. cervical & thoracic; lumbar & sacral
    b. thoracic & lumbar; cervical & sacral
    c. thoracic & sacral; cervical & lumbar
    d. cervical & sacral; thoracic & lumbar
    e. cervical & lumbar; thoracic & sacral
14. Hyperplasia is a normal ability of _____ muscle.
   a. skeletal
   b. cardiac
   c. smooth
   d. striated
   e. none of the previous

15. Which of the following fascicular arrangements is not found in your body?
   a. fusiform
   b. circular
   c. triangular
   d. deltoid
   e. unipennate

16. Motor units can be found in _____ muscle.
   a. skeletal
   b. cardiac
   c. smooth
   d. a & b
   e. a & c

17. A patent foramen ovale is a neonatal condition in which the foramen ovale fails to close at birth. You would expect such a condition to result in _____.
   a. increased blood flow out of the left ventricle
   b. reduced blood flow to the pulmonary trunk
   c. increased blood flow through the tricuspid valve
   d. a & b
   e. a, b & c

18. The movie Osmosis Jones stars an unconventional white blood cell “cop” traveling throughout Bill Murray’s body in search of an elusive, deadly pathogen. If Osmosis started out in the large intestine on the left side of Bill’s body, which of the following is the anatomically correct (though not necessarily complete) route to catch the virus hiding in the heart?
   a. superior mesenteric vein → hepatic vein → splenic vein → inferior vena cava
   b. superior mesenteric vein → hepatic portal vein → ductus venosus → hepatic veins → inferior vena cava
   c. splenic vein → ductus venosus → hepatic vein → inferior vena cava
   d. splenic vein → ligamentum venosum → hepatic capillary → inferior vena cava
   e. inferior mesenteric vein → splenic vein → hepatic portal vein → inferior vena cava

19. Later, Osmosis finds himself crawling on hands & knees (or what passes for them on a WBC) single-file behind a line of erythrocytes through a tortuous endothelial tube with gaping intercellular clefts and an incomplete basement membrane. He is most likely in a _____ in the _____.
   a. lacteal; small intestine
   b. sinusoid; spleen
   c. fenestrated capillary; kidney
   d. lymph capillary; brain
   e. continuous capillary; liver
20. After a rough day of chasing pathogens, Osmosis longs for the days when he was just an adolescent T cell going to school in the _____, which is considered a _____ lymph organ.
   a. thymus; primary
   b. thymus; secondary
   c. red bone marrow; primary
   d. red bone marrow; secondary
   e. spleen; primary

21. Fibrous connective tissue trabeculae can be found in which of the 5 following structures?
   1. right ventricle   2. left ventricle   3. Spleen   4. red bone marrow   5. lymph nodes
   a. 1 & 2   b. 3 & 5   c. 1 only   d. 3 only   e. all five

22. The azygos system _____.
   a. is the primary source of oxygenated blood to the thoracic wall
   b. serves primarily to return thoracic blood to the inferior vena cava
   c. receives three lymph ducts from the upper right side of the body
   d. drains into the cisterna chyli
   e. receives blood from intercostal veins

23. The fibrous skeleton of the heart _____.
   a. electrically insulates the atria from the ventricles
   b. is an extension of the fibrous pericardium
   c. forms the chordae tendineae and serous pericardium
   d. is located in the interventricular septum
   e. prevents eversion of the atrioventricular valves into atria when ventricles contract

24. Closure of the mitral valve prevents passage of blood from the _____.
   a. right ventricle to the right atrium
   b. left ventricle to the left atrium
   c. aorta to the left ventricle
   d. right atrium to the left atrium
   e. pulmonary trunk to the right ventricle

25. The anterior interventricular sulcus marks the division between the _____.
   a. right atrium and right ventricle
   b. left atrium and left ventricle
   c. right atrium and left atrium
   d. right ventricle and left ventricle
   e. a & b

26. Standing on tiptoes requires _____; turning your soles inward requires _____.
   a. pronation; supination
   b. plantarflexion; inversion
   c. dorsiflexion; eversion
   d. hyperextension; rotation
   e. supination; protraction
27. In muscle tissue, thick filaments are primarily ____ and thin filaments are primarily ____.
   a. actin; myosin  
   b. actin; elastin  
   c. actin; titan  
   d. myosin; titan  
   e. none of the previous

28. Epimysium surrounds a _____
   a. fascicle  
   b. myofibril  
   c. myofilament  
   d. myofiber  
   e. none of the previous

29. When you throw a ball, muscles in your back stabilize the scapula, holding it in position so that you may throw more accurately. Those scapular muscles are best termed _____.
   a. prime movers  
   b. agonists  
   c. antagonists  
   d. fixators  
   e. synergists

30. If you disarticulated the vertebral column of one of our lab skeletons, you would typically end up with _____ pieces.
   a. 35  
   b. 33  
   c. 31  
   d. 29  
   e. 26

31. The joint between adjacent vertebral superior and inferior articular processes is classified as a _____ joint, while the joint between adjacent vertebral bodies is classified as a _____ joint.
   a. synovial planar; cartilaginous  
   b. cartilaginous; fibrous  
   c. fibrous; synovial planar  
   d. synovial planar; fibrous  
   e. cartilaginous; synovial planar

32. Papillary muscles attach to atrioventricular cusps via the _____.
   a. semilunar valves  
   b. pectinate muscles  
   c. chordae tendineae  
   d. ligamentum arteriosum  
   e. trabeculae carnae