For the following questions, indicate the letter that corresponds to the SINGLE MOST APPROPRIATE ANSWER.

1. All of the following muscles of the lower extremity have actions across two joints EXCEPT the
   A. adductor magnus.
   B. sartorius.
   C. gastrocnemius.
   D. rectus femoris.
   E. gracilis.

2. The tendon of the extensor hallucis longus muscle passes along the surface of all of the following bones EXCEPT the
   A. talus.
   B. first metatarsal.
   C. medial cuneiform.
   D. calcaneus.
   E. navicular.

3. Cutaneous innervation from branches of the superficial fibular (peroneal) nerve includes sensation coming from skin on the
   A. posterior side of the leg.
   B. infrapatellar region.
   C. medial side of the leg.
   D. plantar surface of the foot.
   E. dorsal surface of the foot.

4. A construction worker, using a nail gun, accidentally fires a nail into his right ankle just inferior to the lateral malleolus of the fibula. All of the following structures are likely to be damaged EXCEPT the
   A. inferior fibular (peroneal) retinaculum.
   B. tendon of the fibularis (peroneus) longus muscle.
   C. tendon of the fibularis (peroneus) brevis muscle.
   D. tendon of the fibularis (peroneus) tertius muscle.
   E. calcaneofibular ligament.
5. A 12-year-old boy fell while skateboarding, severely injuring a large nerve as it passes posterior to the medial epicondyle of his humerus. The boy’s physician was greatly concerned because he knew that a lesion of this nerve could cause all of the following deficits or signs EXCEPT

A. loss of sensation from the fourth and fifth digits.
B. weakness of the flexor carpi ulnaris muscle.
C. claw-like appearance of the fourth and fifth digits.
D. weakness of the muscles of the thenar eminence.
E. inability to abduct the fourth digit.

6. A 26-year-old hockey player was struck on the back of his arm by an opponent’s hockey stick. The team physician was concerned that damage to the radial nerve in the spiral groove could result in

A. numbness over the medial side of the forearm.
B. inability to oppose the thumb.
C. weakness in flexing the arm.
D. weakness in abducting the arm.
E. wrist drop.

7. During the examination of a 27-year-old man with a leg injury, there was significant posterior movement of the tibia on the femur (a posterior drawer sign). His injury probably was a torn

A. medial meniscus.
B. lateral (fibular) collateral ligament.
C. oblique popliteal ligament.
D. posterior cruciate ligament.
E. medial (tibial) collateral ligament.

8. A young man falls on his hand. In the emergency room, he complains of severe pain in his wrist. An x-ray reveals a fracture of the most lateral carpal bone that articulates with the radius. Which carpal bone has been fractured?

A. Scaphoid
B. Pisiform
C. Triquetrum
D. Hamate
E. Lunate
9. A fracture of the lesser tubercle of the humerus could injure the attachment of the
   A. short head of the biceps brachii muscle.
   B. supraspinatus muscle.
   C. teres major muscle.
   D. subscapularis muscle.
   E. coracobrachialis muscle.

10. A cyst, located in the plane between the flexor digitorum superficialis and the flexor digitorum profoundus muscles, was removed. While working in the plane between these two muscles, the surgeon was careful not to damage the
   A. median nerve.
   B. radial artery.
   C. anterior interosseous artery.
   D. posterior interosseous nerve.
   E. superficial radial nerve.

11. A 61-year-old letter carrier fractured the surgical neck of his humerus following a fall during a confrontation with a neighborhood dog. Of the following, the structure most likely damaged is the
   A. profunda brachii artery.
   B. circumflex scapular artery.
   C. posterior humeral circumflex artery.
   D. radial nerve.
   E. median nerve.

12. A 22-year-old basketball player was stabbed in the anterior axillary fold during a brawl in a bar. The muscle most likely injured is the
   A. pectoralis major muscle.
   B. long head of the triceps brachii muscle.
   C. teres major muscle.
   D. serratus anterior muscle.
   E. latissimus dorsi muscle.
13. An addict who has been injecting intravenous drugs for many years is brought to the emergency department due to a drug overdose. The nurse needs to start an intravenous line, but many of the veins in his upper extremity are collapsed and scarred. While looking for a suitable vein, she remembers that the

A. cephalic vein originates from the medial side of the dorsal venous arch.
B. basilic vein joins the cephalic vein at the level of the axilla.
C. median cubital vein lies deep to the bicipital aponeurosis.
D. cephalic vein lies in the deltopectoral groove.
E. basilic vein empties directly into the subclavian vein.

14. A patient has been complaining that her right hand seems to feel colder than her left hand. You suspect that there might be some blockage of the blood supply to her right hand. As an initial examination, you wish to compare the strength of the pulse of the two limbs. A pulse may be palpated in all of the following locations EXCEPT

A. the medial side of the tendon of the biceps brachii muscle.
B. immediately lateral to the tendon of the palmaris longus muscle.
C. the radial side of the tendon of the flexor carpi radialis muscle.
D. the radial side of the tendon of the flexor carpi ulnaris muscle.
E. between the tendons of the extensor pollicis longus and brevis muscles.

15. During a street fight, a 25-year-old man was slashed with a knife along the posteromedial side of his right knee. The laceration penetrated all the way to the medial condyle of the tibia, severing three tendons. These tendons belonged to muscles involved in all of the following movements of the lower extremity EXCEPT

A. medial rotation of the leg.
B. flexion of the leg.
C. flexion of the thigh.
D. extension of the thigh.
E. extension of the leg.

16. An arteriogram of the axillary artery of a patient reveals that there is stenosis (narrowing) of the artery just proximal to the tendon of the pectoralis minor muscle. The patient does not show any signs of ischemia in the limb because of arterial anastomoses around the scapula. These anastomoses include branches from all of the following arteries EXCEPT the

A. subscapular.
B. suprascapular.
C. transverse cervical.
D. circumflex scapular.
E. lateral thoracic.
17. A 35-year-old woman, who has had carpal tunnel syndrome for many years, could, upon examination, have all of the following signs and/or symptoms EXCEPT

A. tingling or pain in the lateral three and a half digits.
B. inability to pick up a quarter.
C. atrophy of the interosseous muscles.
D. a flattened thenar eminence.
E. loss of sensation around the nail bed of the index finger.

18. A 28-year-old woman reported that she had accidentally “nicked” the tendon of the flexor digitorum profundus muscle of her middle finger with a dirty penknife a few days ago. Her finger is a bit swollen and she is having difficulty moving it. She is given a course of antibiotics to prevent the spread of the infection. You explain to her that the infection

A. could easily spread to her thumb.
B. could easily spread to her index finger.
C. could easily spread to the palm of her hand.
D. usually would be confined to the middle finger.
E. could easily spread to all of the digits of her hand.

19. Which of the following statements describing the blood supply of the hand is correct?

A. The superficial arch is a direct continuation of the radial artery.
B. The deep palmar arch is distal to the superficial palmar arch.
C. There are no anastomoses between the two arterial arches.
D. The artery to the thumb usually arises from the radial artery.
E. The common palmar digital arteries arise from the deep arch.

20. A 70-year-old man was brought to the emergency department with a knife laceration of his right thigh, cutting a portion of the sartorius muscle where it forms the roof of the adductor canal. During the procedure to repair this muscle, a nerve that traverses the adductor canal was inadvertently sutured, injuring it. After this surgical repair, the patient may have symptoms that include

A. weakness in adduction of the right thigh.
B. loss or abnormal sensation in the area of skin covering the femoral triangle.
C. difficulty in extending the thigh at the hip.
D. loss or abnormal sensation of the skin covering the medial side of the leg.
E. loss or abnormal sensation of the skin covering the upper medial area of the thigh.
21. A 48-year-old right-handed carpenter received a shallow cut on the right thenar eminence that injured a motor nerve. Of the following, the most likely symptom that this man would notice if the nerve was not repaired would be difficulty in

A. pushing buttons to make a call on a touch telephone.
B. waving to his partner to let her know where he’s standing.
C. picking up a nail.
D. knocking on a door.
E. holding a cigarette between digits two and three.

22. Pes planus (flatfeet) is usually caused by a “flattened” medial longitudinal arch. Structures associated with this arch include all of the following EXCEPT the

A. calcaneus bone.
B. lateral (third) cuneiform bone.
C. plantar calcaneonavicular ligament.
D. talus bone.
E. long plantar ligament.

23. Palpation of the popliteal artery is commonly performed with the patient in the prone position and with the leg flexed at the knee joint. Besides this artery, other structures found within the popliteal fossa include all of the following EXCEPT the

A. common fibular (peroneal) nerve.
B. saphenous nerve.
C. lymph nodes.
D. genicular arteries.
E. small saphenous vein.

24. During physical examination of a 45-year-old woman, the physician observed that the right side of her pelvis sags when she is asked to stand on her left foot while raising her right leg off the floor. What is the most likely cause of this finding?

A. The right inferior gluteal nerve is severed.
B. The left gluteus maximus muscle is paralyzed.
C. The greater trochanter of the right femur is fractured.
D. The left obturator nerve is severed.
E. The left superior gluteal nerve is severed.
25. An injury posterior to the right medial malleolus would most likely involve all of the following structures EXCEPT the

A. tibial nerve.
B. tendon of the flexor digitorum brevis muscle.
C. tendon of the tibialis posterior muscle.
D. posterior tibial artery.
E. tendon of the flexor hallucis longus muscle.

26. A 40-year-old woman had varicose veins extending from her lower thigh down to the dorsum of her foot. Surgical treatment was required. You know that all of the following statements regarding the veins of the lower extremity are correct EXCEPT that

A. the great saphenous vein drains into the femoral vein.
B. most venous blood flows from superficial veins to deep veins via perforating veins.
C. the small saphenous vein passes posterior to the lateral malleolus.
D. superficial veins, but not deep veins, have valves.
E. the great saphenous vein travels with the saphenous nerve for part of its course.

27. A 30-year-old man is brought to the emergency department with a stab wound to the posterior compartment of his thigh. This compartment receives its main blood supply from the

A. obturator artery.
B. superior gluteal artery.
C. medial femoral circumflex artery.
D. popliteal artery.
E. perforating branches of the profunda femoris artery.

28. A misplaced intramuscular injection into the gluteal region infiltrated the sciatic nerve and structures surrounding it, giving rise to temporary paralysis of the muscles supplied by that nerve. Muscles paralyzed include all of the following EXCEPT the

A. tibialis posterior.
B. gastrocnemius.
C. abductor hallucis.
D. tensor fasciae latae.
E. semitendinosus.
29. A child falls on a spike, injuring structures in the upper lateral margin of the popliteal fossa. What nerve was likely injured?

A. Obturator
B. Femoral
C. Sciatic
D. Common fibular (peroneal)
E. Tibial

30. Patients with cerebral palsy can have marked spasticity of the adductor group of muscles in the lower extremity. It is common practice to sever the nerve supply to the muscles in the medial compartment of the thigh in order to overcome the spasm of this muscle group. During the procedure, the surgeon severs the

A. sciatic nerve.
B. pudendal nerve.
C. obturator nerve.
D. inferior gluteal nerve.
E. femoral nerve.

31. While rotating through the emergency department at the Children’s Hospital, you see a patient whose right foot is dorsiflexed and everted. You suspect injury to the

A. deep peroneal nerve.
B. superficial fibular (peroneal) nerve.
C. common fibular (peroneal) nerve.
D. tibial nerve.
E. femoral nerve.

32. The median nerve of a 27-year-old man was severed by a knife at a point five inches proximal to his elbow. This injury to the median nerve will result in COMPLETE loss of

A. flexion of the arm.
B. flexion of the forearm.
C. flexion of the hand at the wrist.
D. pronation of the forearm.
E. flexion of the metacarpophalangeal joints.
33. A 24-year-old camper developed an infection of the nail bed of her middle finger. Her dermatologist knew that the nail bed of the middle finger receives its nerve supply from the digital branches of the

A. superficial ulnar nerve.
B. median nerve.
C. deep branch of the radial nerve.
D. superficial radial nerve.
E. dorsal branch of the ulnar nerve.

34. A 13-year-old skateboarder crashed into a culvert, damaging the medial epicondyle of his humerus. In assessing the injury, his orthopedist knew the nerve which supplies most of the muscles that attach to the medial epicondyle is the

A. median.
B. posterior interosseous.
C. superficial radial.
D. deep radial.
E. ulnar.

35. A 67-year-old man fell while jogging, injuring his rotator cuff. In assessing the injury, his orthopedist knew that the nerves which supply the muscles of the rotator cuff are the

A. radial, axillary, suprascapular, and upper subscapular.
B. axillary, suprascapular, and upper and lower subscapulars.
C. suprascapular, upper and lower subscapulars, and radial.
D. upper and lower subscapulars, radial, and axillary.
E. axillary, dorsal scapular, and upper and lower subscapulars.

36. A shard of metal penetrated the palm of a 31-year-old tool-and-die craftsman. His hand surgeon, suspecting damage to a nerve that travels with the deep palmar arch, knew that the best way to test for the intactness of this nerve is to

A. prick the tip of the middle finger to test for loss of pain.
B. ask the patient to flex the index finger.
C. ask the patient to extend the index finger.
D. ask the patient to spread the fingers.
E. ask the patient to touch the tip of the little finger with the thumb.
37. While removing cancerous lymph nodes of a 71-year-old woman, the surgeon was forced to section the lower trunk of the brachial plexus. The symptoms resulting from sectioning this trunk would include loss of

A. sensation to the little finger.
B. ability to extend the hand at the wrist.
C. ability to flex the forearm.
D. sensation to the thumb.
E. ability to flex the arm.

38. A 23-year-old skier and medical student broke his right tibia on a Christmas skiing trip to Colorado. After using crutches for two months, he reported to his orthopedist that he was having difficulty abducting his arm and extending his elbow and wrist joints. The most likely location of damage resulting from use of the crutches is to the

A. suprascapular nerve.
B. radial nerve.
C. posterior cord of the brachial plexus.
D. axillary nerve.
E. lateral cord of the brachial plexus.

39. While filleting a walleye on a fishing trip, a 19-year-old man punctured his ulnar artery as it passed lateral to the pisiform bone. Because medical help was miles away and the wound was bleeding profusely, his friend clamped the artery immediately proximal to the pisiform bone. This procedure would probably cause a change in the direction of blood flow in the

A. radial artery at the distal end of the radius.
B. dorsal carpal arch.
C. superficial palmar arterial arch.
D. deep palmar arterial arch.
E. palmar digital arteries.

40. Following a gunshot wound in the femoral triangle of the thigh, the femoral artery of a 36-year-old man was ligated one centimeter inferior to the inguinal ligament. You know that, the cruciate anastomosis will continue to supply blood to the lower limb. This anastomosis involves branches from all of the following arteries EXCEPT the

A. first perforating branch of the profunda femoris.
B. medial femoral circumflex.
C. lateral femoral circumflex.
D. obturator.
E. inferior gluteal.
41. A 25-year-old man was stabbed two centimeters above his left patella. Two days later, he went to see his doctor because the wound was infected. Upon examination, his physician noticed that the distal portion of his patient’s anterior left thigh was swollen and very tender. The physician was concerned that the infection had spread to the cavity of the knee joint. Which of the following structures was most likely responsible for the observed swelling and tenderness?

A. Suprapatellar bursa  
B. Subcutaneous prepatellar bursa  
C. Subcutaneous infrapatellar bursa  
D. Deep infrapatellar bursa  
E. Popliteus bursa

42. A strategy in tag-team professional wrestling is to damage one of the opponent’s upper limbs. An effective way to achieve this involves one teammate holding the opponent’s arm in an abducted position while his partner jumps on the lateral side of the opponent’s elbow. This maneuver stretches the ligament on the opposite side which is the

A. quadrate ligament.  
B. annular ligament.  
C. radial collateral ligament.  
D. ulnar collateral ligament.  
E. radiocarpal ligament.

43. A 37-year-old man arrives at the emergency department with a shoulder injury. An X-ray shows that the clavicle has moved superior to the acromion. You immediately suspect damage to the

A. coracoclavicular ligament.  
B. coracoacromial ligament.  
C. costoclavicular ligament.  
D. interclavicular ligament.  
E. sternoclavicular ligament.

44. All of the following bones are formed through the process of endochondral ossification EXCEPT for the

A. scaphoid.  
B. first metatarsal.  
C. tibia.  
D. clavicle.  
E. humerus.
45. Which of the following structures of the arm are derived from somitic mesoderm?

A. Palmar radiocarpal ligament
B. Brachial artery
C. Tendon of the biceps brachii muscle
D. Flexor carpi ulnaris muscle fibers
E. Scaphoid bone

Answers: 1a2d3e4d5d6e7d8a9d10a11c12a13d14b15e16e17e18d19d20d21c22e23b24e25b26d27e28d29d30c31d32d33b34a35b36d37a38c39c40d41a42d43a44d45d