

# ABPMR PMM&R 100

## Part I practice questions

June 2015 release

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**These questions are provided by the ABPMR for study purposes only.**

They are intended as a study tool for the Part I Certification Examination.

These are actual ABPMR Part I Certification Examination questions, but they have been permanently removed from examination item banks and will no longer be used on any ABPMR examinations.

With the exception of these questions, the ABPMR does not share board exam questions with anyone.

1. A patient presents with joint pain and swelling with symmetric involvement of the ankles, heels, spine, and sacroiliac joints with calcaneal spurs and periosteal proliferation near the involved joints. This is characteristic of the arthropathy associated with
  - A. psoriatic arthritis
  - B. reactive arthritis (Reiter disease)
  - C. chondrocalcinosis
  - D. Behçet syndrome
  
2. Three weeks after a severe traumatic brain injury (TBI) with basilar skull fracture, a 23-year-old patient in a rehabilitation unit develops new onset ocular pain, unilateral proptosis, and unilateral orbital vascular congestion. What is the most likely diagnosis?
  - A. Detached retina
  - B. Acute narrow angle glaucoma
  - C. Carotid cavernous fistula
  - D. Retrobulbar hematoma
  
3. In a person with a transfemoral amputation, an abnormal prosthetic gait with lateral trunk bending toward the involved side in midstance most commonly occurs with hip
  - A. adductor weakness
  - B. extension contracture
  - C. flexion contracture
  - D. abductor weakness
  
4. Which modality should precede shoulder stretching in a patient with adhesive capsulitis?
  - A. Massage
  - B. Ice packs
  - C. Electrical stimulation
  - D. Ultrasound

5. A 22-year-old patient with mild suprascapular pain and radiation into the ipsilateral upper extremity is examined with a monopolar needle electrode at minimal voluntary contraction. In the biceps brachii, the second motor unit to fire is observed when the first noted motor unit fires at 10 Hz. These findings are most consistent with
- A. polymyositis
  - B. no abnormality
  - C. brachial plexopathy
  - D. C6 radiculopathy
6. A 36-year-old manual laborer sustained a surgically visualized complete laceration of the median nerve at the wrist. However, he continues to have grade 3 strength of thumb abduction. Needle electromyography of the opponens pollicis shows abundant fibrillation potentials and reduced numbers of normal-appearing voluntary motor units. The most likely explanation of these findings is anomalous innervation of the median nerve innervated muscles via
- A. a median to ulnar nerve forearm communication (Martin-Gruber anastomosis)
  - B. an ulnar to median nerve forearm communication
  - C. a radial to ulnar nerve hand communication (Froment-Rauber anastomosis)
  - D. an ulnar to median nerve hand communication (Riche-Cannieu anastomosis)
7. Concentric activation of the iliopsoas muscle is essential to which phase of the gait cycle?
- A. Midstance
  - B. Terminal stance
  - C. Preswing
  - D. Terminal swing
8. What is the preferred imaging technique to rule out Osgood-Schlatter disease?
- A. Conventional radiography
  - B. Arthrography
  - C. Ultrasonography
  - D. Magnetic resonance imaging

9. Considering safety and comfort, what is the preferred location for needle electrode insertion when studying the diaphragm?
- A. The fourth or fifth interspace, at the anterior axillary line
  - B. The fourth or fifth interspace, at the posterior axillary line
  - C. The eighth or ninth interspace, at the anterior axillary line
  - D. Overlying the subscapularis, directed tangential to the skin
10. What is the most common cause of diskitis?
- A. Pseudomonas
  - B. Mycobacterium
  - C. Streptococcus
  - D. Staphylococcus
11. A 70-year-old woman presents with symmetrical stiffness, tenderness, and pain over both shoulders and proximal thighs. The symptoms have persisted for the past 10 weeks. The sedimentation rate is 110. The best therapeutic approach is to prescribe
- A. steroids
  - B. colchicine
  - C. methotrexate
  - D. nonsteroidal anti-inflammatory drugs
12. A 76-year-old woman is referred for rehabilitation following a recent left total hip arthroplasty. To prevent hip dislocation, you instruct the patient to avoid hip
- A. adduction beyond neutral
  - B. abduction greater than 20 degrees
  - C. flexion greater than 45 degrees
  - D. external rotation beyond neutral

13. Which risk factor is most clearly implicated in the development of degenerative lumbar diskogenic disease?
- A. Hyperlordosis
  - B. Smoking
  - C. Body build
  - D. Posture
14. The treatment program for a 43-year-old patient during the first week following an impacted humeral neck fracture should include
- A. immobilization
  - B. active assisted range of motion
  - C. active range of motion
  - D. surgery
15. A 43-year-old runner presents with right-sided hip pain. On examination, you note tenderness to palpation over the greater trochanter on the affected side. No focal neurologic deficits are noted and no other areas of tenderness are elicited. A key part of your treatment plan should include strengthening of the hip
- A. internal rotators
  - B. extensors
  - C. abductors
  - D. adductors
16. Which cardiorespiratory outcome would you expect from an elderly person participating in an aerobic program?
- A. A decrease in  $VO_2$ max but an increase in walking speed
  - B. No change in tolerance during activities of daily living
  - C. Improvement in  $VO_2$ max
  - D. No change in stroke volume and a reduction in systemic vascular resistance

17. A patient complains of pain inferior to the anteromedial surface of the knee, especially while climbing stairs. On examination, there is tenderness to palpation over the proximal anteromedial tibia. What is the most likely diagnosis?
- A. Pes anserinus bursitis
  - B. Iliotibial band syndrome
  - C. Patellar tendinitis
  - D. Prepatellar bursitis
18. Typical radiologic findings in osteoarthritis involving the knee are
- A. symmetrical joint space narrowing
  - B. meniscal calcification
  - C. trabecular sclerosis
  - D. subchondral cysts
19. When treating a patient with a traumatic brain injury (TBI) for detrusor hyperreflexia using anticholinergic agents, what is a possible adverse effect?
- A. Bradycardia
  - B. Diarrhea
  - C. Worsening of delirium
  - D. Pupillary constriction with blurred vision
20. A 50-year-old retired army paratrooper with diabetes complains of pain on ambulation due to degenerative joint disease in his right hip. You prescribe a single cane to
- A. decrease weight-bearing forces across the arthritic hip joint
  - B. help in sensory feedback or environmental scanning
  - C. compensate for gluteus medius weakness
  - D. increase the base of support, thus increasing stability and balance

21. The most common mechanism for Achilles tendon rupture is
- A. active dorsiflexion
  - B. active plantar flexion
  - C. passive dorsiflexion
  - D. passive plantar flexion
22. Which factor differentiates myotonic discharge from complex repetitive discharges (CRDs)?
- A. Amplitude and frequency of potentials
  - B. Duration of the potentials
  - C. Complexity of waveforms in CRDs
  - D. Resemblance of myotonic discharge to triphasic motor unit response
23. What is the most frequent cause of stroke?
- A. Intracranial hemorrhage
  - B. Large vessel thrombosis
  - C. Cerebral embolism
  - D. Vasculitis
24. The pattern of responses depicted here is recorded after 50 Hz stimulation of the median nerve of an infant. Which diagnosis is most likely?
- A. Spinal muscular atrophy
  - B. Botulism
  - C. Inflammatory myopathy
  - D. Human immunodeficiency virus infection

50 Hz

100 mV

3 ms



25. A 42-year-old receptionist has a two-year history of severe radial wrist pain, which is worse with pinching activities and wrist ulnar deviation. Job modification, extensive physical therapy, and multiple cortisone shots have failed to provide much relief. What is the best recommendation?
- A. Wrist arthrodesis
  - B. Referral to a pain program
  - C. Wrist tendon lengthening surgery
  - D. Surgical decompression of the first extensor compartment
26. During nerve conduction studies (NCSs), what is defined as the maximal stimulus?
- A. The highest intensity of stimulus that the patient can tolerate
  - B. Stimulus beyond which there is no further increase in the evoked amplitude
  - C. Stimulus about 20-30% greater than the threshold stimulation
  - D. Any stimulus which is greater than the threshold stimulus
27. When poor initiation is noted during rehabilitation of a patient with a traumatic brain injury (TBI), which region of the brain is the suspected location of injury?
- A. Frontal
  - B. Temporal
  - C. Parietal
  - D. Occipital
28. When viewing magnetic resonance imaging (MRI) of the cervical spine, which tissue type is dark on a T1-weighted image and bright on a T2-weighted image?
- A. Interspinous ligaments
  - B. Facet joints
  - C. Spinal cord
  - D. Nucleus pulposus



29. Which finding correlates with a high risk of ischemic ulceration?
- A. Ankle/brachial ratio of 0.40
  - B. Transcutaneous oxygen (TcPO<sub>2</sub>) of 50 mm Hg
  - C. Serum albumin 3.2 gm/dl
  - D. Stenotic lesion of the superficial femoral artery
30. Which anticonvulsant medication is most likely to cause bone marrow suppression?
- A. Carbamazepine
  - B. Gabapentin
  - C. Lamotrigine
  - D. Valproic acid
31. Which transverse deficiency represents the most common upper extremity congenital limb loss?
- A. Transhumeral
  - B. Elbow disarticulation
  - C. Transradial
  - D. Wrist disarticulation
32. Neurochemical changes following a traumatic brain injury (TBI) may contribute to secondary brain injury by the mechanism of increased
- A. free-radical production
  - B. extracellular concentrations of magnesium
  - C. extracellular concentrations of calcium
  - D. influx of potassium

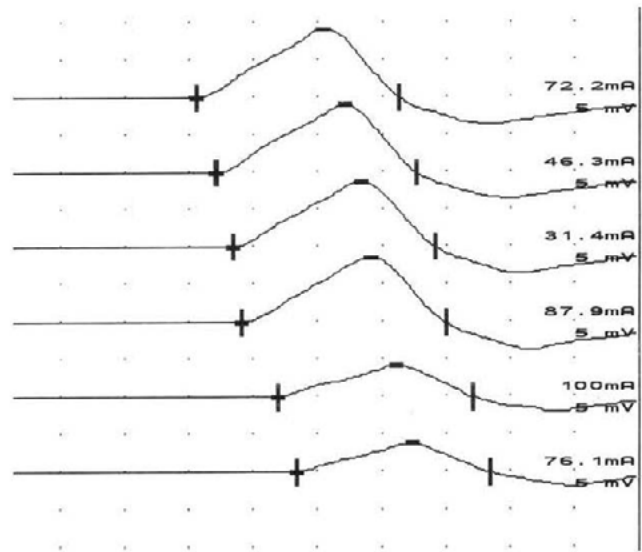
33. What is the anatomic location of a stroke which produces impaired expression, comprehension, and repetition, with normal fluency?
- A. Precentral gyrus
  - B. Temporal gyrus
  - C. Arcuate fasciculus
  - D. Cingulate gyrus
34. Which corticosteroid has the longest duration of anti-inflammatory activity?
- A. Betamethasone
  - B. Methylprednisolone
  - C. Triamcinolone
  - D. Hydrocortisone
35. An elderly patient with advanced spondylosis on plain spine radiographs presents with radicular pain. Which diagnostic study is most likely to confirm neurologic dysfunction?
- A. Computed tomography
  - B. Electrodiagnostic testing
  - C. Magnetic resonance imaging
  - D. Myelography
36. Which fibers transmit poorly localized, dull, visceral pain to the spinal cord?
- A. Myelinated A-alpha
  - B. Myelinated A-delta
  - C. Unmyelinated gamma
  - D. Unmyelinated C

37. Which equipment modification is suitable for a tennis player with lateral epicondylitis?
- A. Larger racquet head
  - B. Larger handle diameter
  - C. Increased string tension
  - D. Stiffer racquet
38. Which cardiopulmonary parameter should improve in a patient with congestive heart failure who is participating in a cardiac rehabilitation program?
- A.  $\text{VO}_2\text{max}$
  - B. Systolic ejection fraction
  - C. Diastolic ventricular filling
  - D. Pulmonary blood flow
39. A patient diagnosed with a lateral medullary stroke exhibits ipsilateral loss of pain/temperature sensation of the face. Where is the corresponding neuroanatomic site?
- A. Descending sympathetic tract
  - B. Vestibular nuclei
  - C. Spinal tract of the trigeminal nerve
  - D. Spinothalamic tract
40. In nondisabled subjects walking at self-selected normal speeds, the normal distribution of time spent in double support is approximately
- A. 10%
  - B. 20%
  - C. 30%
  - D. 40%

41. For a patient with dysphagia following stroke, the chin-tuck maneuver is effective because it decreases
- A. pharyngeal peristalsis
  - B. esophageal sphincter excursion
  - C. pharyngeal pressure
  - D. airway opening
42. Which modality most effectively treats the periarticular tissue of the hip joint?
- A. Hot packs
  - B. Shortwave diathermy
  - C. Ultrasound
  - D. Electrical stimulation
43. Chronic compartment syndrome can be confirmed with which test?
- A. Plethysmography
  - B. Ultrasound
  - C. Slit catheter
  - D. Magnetic resonance imaging
44. What is the most common cause of death in patients with ventilator-dependent tetraplegia who have survived the first 24 hours?
- A. Renal failure
  - B. Pneumonia
  - C. Pressure ulcer infection
  - D. Pulmonary embolism

45. Nerve conduction findings in patients with critical illness polyneuropathy include
- A. conduction block
  - B. reduced sensory and motor evoked amplitudes
  - C. temporal dispersion
  - D. significant decrement to repetitive stimulation
46. What is the initial treatment plan for pain in a patient with acute spinal pain from bony metastasis?
- A. Methadone
  - B. Oxycodone
  - C. Ibuprofen
  - D. Gabapentin

47. A patient presents with complaints of numbness in the ring and little fingers with intrinsic hand weakness. Results from an ulnar motor nerve conduction study (NCS) with short segment incremental study (inching) is shown in this nerve conduction image. The findings are most consistent with a



- A. temporal dispersion
  - B. conduction block
  - C. decrement
  - D. normal study
48. Physical therapy treatment for patients with Parkinson disease includes
- A. teaching the individual to turn en bloc
  - B. training the individual not to focus on foot position
  - C. shortening step length to prevent freezing
  - D. using verbal and visual cueing

49. A man with chronic tetraplegia, ASIA Impairment Scale A, manages his bladder with an indwelling catheter. This cystogram reveals

- A. nephrolithiasis
- B. ureteral atony
- C. vesicoureteral reflux
- D. detrusor hyperreflexia



50. A person who had a lacunar infarct in the posterior limb of the internal capsule would most likely present with

- A. dysarthria-clumsy hand syndrome
- B. ataxic hemiparesis
- C. pure sensory stroke
- D. pure motor stroke

51. Which clinical feature is most likely seen in acute inflammatory demyelinating polyradiculopathy (Guillain-Barré syndrome)?

- A. Areflexia
- B. Asymmetric weakness of at least two extremities
- C. Mild sensory loss
- D. Autonomic dysfunction

52. In a child with Duchenne muscular dystrophy (DMD), which muscle group has the most significant weakness at the time of presentation?

- A. Proximal upper extremities
- B. Proximal lower extremities
- C. Distal upper extremities
- D. Distal lower extremities

53. In a 45-year-old man with a spinal cord injury (SCI) and a history of coronary heart disease, which risk factor is an indication for the most stringent control of low-density lipoprotein (LDL)?
- A. Hypertension
  - B. Diabetes
  - C. Low high-density lipoprotein level
  - D. Family history of coronary heart disease
54. Assuming the use of prostheses, which lower extremity amputation requires the greatest energy expenditure for ambulation?
- A. Bilateral above knee
  - B. Hemipelvectomy
  - C. Unilateral hip disarticulation
  - D. Below knee plus above knee
55. A patient with a burn has undergone lower extremity grafting and immediate postoperative fitting with an edema control dressing. The earliest time for safe ambulation is how many days after the operation?
- A. 1
  - B. 5
  - C. 10
  - D. 15
56. What is an advantage of intermittent positive pressure breathing (IPPB) devices for patients with postpolio syndrome?
- A. Cosmetic appeal
  - B. Portability
  - C. Low cost
  - D. Minimal noise

57. What is the most appropriate prescription for a patient with progressive communication deficits due to flaccid dysarthria secondary to amyotrophic lateral sclerosis (ALS)?
- A. Articulation training
  - B. Speech exercises emphasizing optimum performance
  - C. Adaptive speech strategies such as slow speaking rate
  - D. Computer-based augmentative communication system
58. What is the most important factor to consider when injecting myofascial trigger points?
- A. Type of medication injected
  - B. Localization of trigger points
  - C. Frequency of injection
  - D. Size of needle
59. What property of nonselective nonsteroidal anti-inflammatory drugs (NSAIDs) is most likely to cause an acute adverse event when used to treat a patient with a severe quadriceps contusion?
- A. Analgesic
  - B. Antiplatelet
  - C. Antipyretic
  - D. Anti-inflammatory
60. In patients with a spinal cord injury (SCI), which type of pain is most responsive to transcutaneous electrical nerve stimulation (TENS)?
- A. Deafferentation central
  - B. Radicular
  - C. Complex regional pain syndrome
  - D. Visceral




61. When using an anesthetic for local infiltration prior to shoulder injection, which compound has the longest duration of analgesia?
- A. Lidocaine
  - B. Mepivacaine
  - C. Bupivacaine
  - D. Prilocaine
62. What is the best orthotic management for an acute knee grade 2 medial collateral ligament sprain?
- A. Swedish
  - B. Unloading
  - C. Immobilizer
  - D. Functional
63. According to the American Spinal Injury Association (ASIA) International Standards for Neurological Classification of Spinal Cord Injury, testing of a key muscle should begin in which grade position?
- A. 1
  - B. 2
  - C. 3
  - D. 4
64. What are the sensitivity and specificity of D-dimer as a screening test for occult deep venous thrombosis (DVT) following traumatic brain injury (TBI)?

|    | <b>Sensitivity</b> | <b>Specificity</b> |
|----|--------------------|--------------------|
| A. | Good               | Good               |
| B. | Good               | Poor               |
| C. | Poor               | Good               |
| D. | Poor               | Poor               |

65. When being used as an antispasmodic medication for spinal cord injury (SCI), what is the primary receptor site for diazepam?
- A. GABA A receptors
  - B. GABA B receptors
  - C. Alpha 1 receptors
  - D. Alpha 2 receptors
66. When a patient with cancer is returning home with hospice care, what is the most likely goal of inpatient rehabilitation?
- A. Transfer training
  - B. Endurance training
  - C. Caregiver training
  - D. Contracture management
67. Pharmacologic strategies employed to improve arousal for patients in a minimally conscious/vegetative state after severe traumatic brain injury (TBI) would most likely include stimulation of
- A. glutamate receptors
  - B. gamma-aminobutyric acid inhibition pathways
  - C. serotonergic pathways
  - D. dopaminergic pathways
68. A 28-year-old woman presents with distal weakness, dysarthria, and dysphagia with facial weakness. Physical examination reveals normal sensation, areflexia, and diffuse weakness. What is the earliest electrodiagnostic finding expected in this patient?
- A. Prolonged distal onset motor latencies
  - B. Absent sural sensory response
  - C. Abnormal late responses
  - D. Low-amplitude compound muscle action potential

69. When using a spinal cord stimulator for the management of neuropathic pain, electrodes are placed into which space?
- A. Epidural
  - B. Subarachnoid
  - C. Interdiskal
  - D. Subdural
70. The following tracing represents
- A. myokymia
  - B. myotonia
  - C. complex repetitive discharge
  - D. endplate potentials
- A video file accompanies this item.  
On the computer-based exam, a video would be automatically displayed here.




Please visit  
<https://vimeo.com/131888180>  
to view the video.
71. When providing patient education to a 23-year-old woman with a complete T4 spinal cord injury (SCI), you should tell her that she will be unable to experience
- A. orgasm
  - B. sexual arousal
  - C. psychogenic vaginal lubrication
  - D. pregnancy
72. Which assessment tool can be used to evaluate functional limitations in patients with myofascial pain?
- A. McGill Pain Questionnaire
  - B. Numeric rating scale
  - C. Sickness Impact Profile
  - D. Minnesota Multiphasic Personality Inventory

73. Which therapeutic modality combines a biologically active substance with a coupling medium and uses ultrasound to force the active material into tissue?
- A. Diathermy
  - B. Iontophoresis
  - C. Phonophoresis
  - D. Fluidotherapy
74. A 35-year-old man who sustained a severe traumatic brain injury (TBI) 48 hours ago has now developed new tachycardia, hypertension, agitation, and hallucinations. What is the most likely diagnosis?
- A. Posttraumatic agitation
  - B. Dysautonomia
  - C. Hyponatremia
  - D. Alcohol withdrawal
75. A middle-aged man who fell on his outstretched arm has pain in his shoulder and is unable to initiate abduction of the arm. Examination reveals weakness of shoulder abduction and external rotation and tenderness under the acromion. What is the most likely diagnosis?
- A. Partial C5 root avulsion
  - B. Clavicular fracture
  - C. Rotator cuff tear
  - D. Suprascapular nerve injury
76. Which recreational activity is contraindicated following a total knee arthroplasty?
- A. Hiking
  - B. Power walking
  - C. Jogging
  - D. Cycling

77. Which class of antidepressant medication has a narrow therapeutic index and is associated with fatal heart block or ventricular arrhythmias at toxic doses?
- A. Selective serotonin reuptake inhibitors
  - B. Serotonin-norepinephrine reuptake inhibitors
  - C. Tricyclic antidepressants
  - D. Monoamine oxidase inhibitors
78. A patient on methadone presented with euphoria, agitation, and pupillary constriction. He subsequently had progressive drowsiness leading into a coma. He most likely has opioid-related
- A. allergic reaction
  - B. psychotic disorder
  - C. withdrawal
  - D. intoxication
79. The decision to discontinue antiepileptic drug therapy in a patient with a history of epilepsy is appropriate when the patient has been seizure-free for at least how many months?
- A. 6
  - B. 12
  - C. 18
  - D. 24
80. A patient who sustained a stroke presents with spasticity in the wrist flexors which has been treated with botulinum toxin. Which modality will be most effective when applied to the wrist extensors?
- A. Massage
  - B. Ultrasound
  - C. Muscle cooling
  - D. Electrical stimulation

81. A patient with a recent traumatic brain injury (TBI) developed right lower extremity spasticity and knee flexion contracture which has been treated unsuccessfully with range of motion (ROM) and positioning. What is the next step in the management of this patient?
- A. Additional ROM
  - B. Serial casting
  - C. Electrical stimulation
  - D. Surgical tendon lengthening
82. A 29-year-old dancer presents with pain that originates on the sole of her foot. She is tender to palpation along the anterior calcaneus and medial arch. What is the most likely diagnosis?
- A. Calcaneal bursitis
  - B. Tibiotalar impingement
  - C. Lisfranc joint subluxation
  - D. Plantar fasciitis
83. The test in this video is useful for diagnosing
- A. a syndesmosis injury
  - B. anterior compartment syndrome
  - C. an Achilles tendon rupture
  - D. a peroneal tendon dislocation
- A video file accompanies this item. On the computer-based exam, a video would be automatically displayed here.



Please visit  
<https://vimeo.com/131888181>  
to view the video.
84. A 77-year-old man who sustained a stroke with right hemiplegia and marked receptive aphasia three months ago is being evaluated for electromyographic and force biofeedback after developing improvements in voluntary motor control. You advise against this therapy because of his
- A. age
  - B. aphasia
  - C. duration of stroke
  - D. shoulder subluxation

85. What is the preferred treatment for a patient with acute complex regional pain syndrome (CRPS) type I with edema?
- A. Topical dimethyl sulfoxide
  - B. Baclofen
  - C. Prednisone
  - D. Ibuprofen
86. After sustaining a stroke, a patient presents with restricted shoulder abduction. A diagnostic block of which nerve will be most helpful in distinguishing muscle overactivity from fixed contracture?
- A. Spinal accessory
  - B. Musculocutaneous
  - C. Thoracodorsal
  - D. Dorsal scapular
87. In the nonoperative treatment of a proximal humerus fracture, when should shoulder passive range of motion (ROM) exercises begin?
- A. Within one week
  - B. Within 2-3 weeks
  - C. Within 4-6 weeks
  - D. When fracture is healed
88. A patient with a lesion in the left inferior frontal gyrus would most likely have which type of aphasia?
- A. Conduction
  - B. Anomic
  - C. Broca
  - D. Wernicke

89. In severe carpal tunnel syndrome, weakness and atrophy primarily involve the flexor pollicis brevis, abductor pollicis brevis, and
- A. flexor pollicis longus
  - B. adductor pollicis
  - C. abductor pollicis longus
  - D. opponens pollicis
90. Following a burn injury, transparent custom total contact face mask orthoses are used to
- A. cover the disfigurement
  - B. preserve facial contours
  - C. increase eyelid eversion
  - D. prevent infection
91. A patient with gangrene of the distal foot has the following segmental pressures.

|                           |      |
|---------------------------|------|
| Ankle brachial index      | .50  |
| Lower calf brachial index | .60  |
| Upper calf                | .90  |
| Lower thigh               | 1.00 |
| Upper thigh               | 1.20 |

What level of amputation is recommended for optimal healing and ambulation?

- A. Syme
  - B. Below knee
  - C. Above knee
  - D. Hip disarticulation
92. What is the final activating force used in the muscle energy technique?
- A. Patient muscle contraction
  - B. Movement to the barrier
  - C. Position hold by the practitioner
  - D. Low-amplitude, high-velocity thrust



93. An individual with spina bifida presents with this lower extremity deformity.



What is the term for this abnormality?

- A. Equinovarus
  - B. Equinovalgus
  - C. Calcaneovalgus
  - D. Vertical talus
94. Which nerve conduction finding would be expected in a C6 radiculopathy?
- A. Abnormal ulnar compound motor action potential with pickup over the abductor digiti minimi
  - B. Abnormal median compound motor action potential with pickup over the abductor pollicis brevis
  - C. Normal median sensory nerve action potential
  - D. Abnormal radial sensory nerve action potential

95. A 70-year-old man with a history of type 2 diabetes mellitus, hypercholesterolemia treated with a cholesterol-lowering agent, and hypothyroidism presented with a two-week history of pain in the left lower extremity and difficulty climbing stairs. Diagnostic testing, including lumbosacral magnetic resonance imaging (MRI) and cerebrospinal fluid (CSF) analysis, was unremarkable. Electrodiagnostic testing results are shown below.

|  | Nerve Latency (ms) | Amplitude | Conduction Velocity (m/s) | F Wave (ms) |
|--|--------------------|-----------|---------------------------|-------------|
| Left sural   | 4.2                | 4 $\mu$ V | 45                        |             |
| Left superficial peroneal (fibular)                  | 4.0                | 3 $\mu$ V | 40                        |             |
| Left tibial to abductor hallucis                     | 5.2                | 4.6 mV    | 45                        | 50          |
| Left peroneal (fibular) to extensor digitorum brevis | 4.8                | 3.5 mV    | 46                        | 49          |
| Left femoral to rectus femoris                       |                    | 5 mV      |                           |             |
| Right femoral to rectus femoris                      |                    | 1 mV      |                           |             |

Needle exam showed positive waves and fibrillations with decreased recruitment in the left rectus femoris, tensor fascia lata, and iliopsoas muscles. Other upper and lower extremity muscles were normal. What is the most likely diagnosis?

- A. Amyotrophic lateral sclerosis
  - B. Acute inflammatory demyelinating polyneuropathy
  - C. Inflammatory myopathy
  - D. Diabetic amyotrophy
96. In a patient who sustained a thalamic stroke, how are pain and temperature perception affected below the level of the lesion?

|    | Location      | Temperature |
|----|---------------|-------------|
| A. | Ipsilateral   | Loss        |
| B. | Contralateral | Loss        |
| C. | Ipsilateral   | Intact      |
| D. | Contralateral | Intact      |

97. What is the most commonly used switch access method for alternative and augmentative communication devices?
- A. Picture text scanning
  - B. Noun verb scanning
  - C. Row column scanning
  - D. Line checkbox scanning
98. When combined with active range of motion (ROM) exercise, which modality can improve hand function in individuals with scleroderma (systemic sclerosis) or rheumatoid arthritis (RA)?
- A. Transcutaneous electrical nerve stimulation
  - B. Therapeutic ultrasound
  - C. Cryotherapy
  - D. Paraffin baths
99. A patient presents with progressive, unrelenting low back pain. Two months ago, an uncomplicated discectomy successfully relieved the patient's radicular symptoms. Which imaging study would most likely confirm the diagnosis at this time?
- A. X-ray of lumbosacral spine
  - B. Magnetic resonance imaging with contrast
  - C. Ultrasound
  - D. Three-phase bone scan
100. In order to differentiate a lesion of the common peroneal (fibular) nerve from the deep peroneal (fibular) nerve at the fibular head, which muscle should be tested with needle electromyography?
- A. Long head of the biceps femoris
  - B. Short head of the biceps femoris
  - C. Peroneus (fibularis) longus
  - D. Tibialis anterior

1. **CORRECT ANSWER: B**  
Class 1 code: **B1e** | Class 2 code: **A2**  
Reference: Fishman S et al. Bonica's Management of Pain. 4th ed. 2010, page 442.
2. **CORRECT ANSWER: C**  
Class 1 code: **A3** | Class 2 code: **A2**  
Reference: Zasler ND et al. Brain Injury Medicine. 2nd ed. 2013, page 740.
3. **CORRECT ANSWER: D**  
Class 1 code: **C2** | Class 2 code: **A3b**  
Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 2023.
4. **CORRECT ANSWER: D**  
Class 1 code: **E1b** | Class 2 code: **C2d**  
Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 913.
5. **CORRECT ANSWER: B**  
Class 1 code: **F** | Class 2 code: **B4**  
Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 200.
6. **CORRECT ANSWER: D**  
Class 1 code: **F** | Class 2 code: **B4**  
Reference: Dumitru D, et al. Electrodiagnostic Medicine. 2nd ed. 2002, page 192.
7. **CORRECT ANSWER: C**  
Class 1 code: **E1g** | Class 2 code: **A3b**  
Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 123.

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8. CORRECT ANSWER: **A**

Class 1 code: **B2b** | Class 2 code: **A3e**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 860.

9. CORRECT ANSWER: **C**

Class 1 code: **F** | Class 2 code: **B4**

Reference: Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle. 4th ed. 2013, page 395.

10. CORRECT ANSWER: **D**

Class 1 code: **D5** | Class 2 code: **A2**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1307.

11. CORRECT ANSWER: **A**

Class 1 code: **B2I** | Class 2 code: **C1**

Reference: Klippel JH. Primer on the Rheumatic Diseases. 13th ed. 2008, page 406.

12. CORRECT ANSWER: **A**

Class 1 code: **B1b** | Class 2 code: **C3b**

Reference: O'Young et al. PM&R Secrets. 2nd ed. 2002, page 286.

13. CORRECT ANSWER: **B**

Class 1 code: **B2h** | Class 2 code: **A2**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 3rd ed. 2007, page 921.

14. CORRECT ANSWER: **A**

Class 1 code: **B2f** | Class 2 code: **C3e**

Reference: DeLee JC et al. DeLee & Drez's Orthopaedic Sports Medicine: Principles and Practice. 3rd ed. 2010., page 1039.

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15. CORRECT ANSWER: **C**Class 1 code: **B2j** | Class 2 code: **C3b**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1430.

16. CORRECT ANSWER: **C**Class 1 code: **F** | Class 2 code: **E2c**

Reference: Gonzalez EG et al. Downey and Darling's Physiological Basis of Rehabilitation Medicine. 3rd ed. 2001, page 572.

17. CORRECT ANSWER: **A**Class 1 code: **B2j** | Class 2 code: **A2**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 859.

18. CORRECT ANSWER: **D**Class 1 code: **B1b** | Class 2 code: **A3e**

Reference: Frontera WR et al. Essentials of Physical Medicine and Rehabilitation. 3rd ed. 2015, page 362.

19. CORRECT ANSWER: **C**Class 1 code: **D3e** | Class 2 code: **C4f**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1148.

20. CORRECT ANSWER: **A**Class 1 code: **B1b** | Class 2 code: **D3g**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 845.

21. CORRECT ANSWER: **B**Class 1 code: **B2a** | Class 2 code: **E4**

Reference: DeLee JC et al. DeLee &amp; Drez's Orthopaedic Sports Medicine: Principles and Practice. 3rd ed. 2010., page 2002.

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22. CORRECT ANSWER: **A**

Class 1 code: **F** | Class 2 code: **B4**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 200.

23. CORRECT ANSWER: **B**

Class 1 code: **A1** | Class 2 code: **E6**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1178.

24. CORRECT ANSWER: **B**

Class 1 code: **A5o** | Class 2 code: **B5**

Reference: Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle. 4th ed. 2013, page 822.

25. CORRECT ANSWER: **D**

Class 1 code: **B2j** | Class 2 code: **C1**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 929.

26. CORRECT ANSWER: **B**

Class 1 code: **F** | Class 2 code: **B3**

Reference: Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle. 4th ed. 2013, page 76.

27. CORRECT ANSWER: **A**

Class 1 code: **A3** | Class 2 code: **E1a**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 603.

28. CORRECT ANSWER: **D**

Class 1 code: **F** | Class 2 code: **A3e**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 168.

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29. CORRECT ANSWER: **A**

Class 1 code: **C2** | Class 2 code: **A3a**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1179.

30. CORRECT ANSWER: **A**

Class 1 code: **E1d** | Class 2 code: **C4b**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1753.

31. CORRECT ANSWER: **C**

Class 1 code: **C1** | Class 2 code: **E6**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 3rd ed. 2007, page 267.

32. CORRECT ANSWER: **A**

Class 1 code: **A3** | Class 2 code: **E3a**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1136.

33. CORRECT ANSWER: **B**

Class 1 code: **E2a** | Class 2 code: **E1a**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1183.

34. CORRECT ANSWER: **A**

Class 1 code: **B2j** | Class 2 code: **C4e**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1749.

35. CORRECT ANSWER: **B**

Class 1 code: **B2h** | Class 2 code: **C1**

Reference: Dumitru D, et al. Electrodiagnostic Medicine. 2nd ed. 2002, page 420.

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36. CORRECT ANSWER: **D**

Class 1 code: **E4** | Class 2 code: **E3a**

Reference: Skirven TM. Rehabilitation of the Hand and Upper Extremity. 6th ed. 2011, page 1454.

37. CORRECT ANSWER: **B**

Class 1 code: **B2b** | Class 2 code: **D3g**

Reference: DeLee JC et al. DeLee & Drez's Orthopaedic Sports Medicine: Principles and Practice. 3rd ed. 2010., page 1200.

38. CORRECT ANSWER: **A**

Class 1 code: **D1a** | Class 2 code: **E3c**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 732.

39. CORRECT ANSWER: **C**

Class 1 code: **A1** | Class 2 code: **E1a**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1187.

40. CORRECT ANSWER: **B**

Class 1 code: **F** | Class 2 code: **A3b**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 100.

41. CORRECT ANSWER: **D**

Class 1 code: **E1h** | Class 2 code: **E3f**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 594.

42. CORRECT ANSWER: **C**

Class 1 code: **B2k** | Class 2 code: **C2d**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 135.

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43. CORRECT ANSWER: **C**

Class 1 code: **B2I** | Class 2 code: **A3g**

Reference: DeLee JC et al. DeLee & Drez's Orthopaedic Sports Medicine: Principles and Practice. 3rd ed. 2010., page 650.

44. CORRECT ANSWER: **B**

Class 1 code: **A2** | Class 2 code: **A5**

Reference: Lin VW et al. Spinal Cord Medicine: Principles and Practice. 2nd ed. 2010, page 175.

45. CORRECT ANSWER: **B**

Class 1 code: **A4b** | Class 2 code: **B3**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1161.

46. CORRECT ANSWER: **C**

Class 1 code: **D4** | Class 2 code: **C4a**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1154.

47. CORRECT ANSWER: **B**

Class 1 code: **A4a** | Class 2 code: **B3**

Reference: Adams and Victor's Principles of Neurology. 9th ed. New York: McGraw-Hill; 2009, page 1239-1240.

48. CORRECT ANSWER: **D**

Class 1 code: **A5n** | Class 2 code: **C3a**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 648.

49. CORRECT ANSWER: **C**

Class 1 code: **D3a** | Class 2 code: **A3c**

Reference: Pollack HM, et al. Clinical Urology. 2nd ed. 2000, page 1105.

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50. CORRECT ANSWER: **D**

Class 1 code: **A1** | Class 2 code: **A1**

Reference: Adams and Victor's Principles of Neurology. 9th ed. New York: McGraw-Hill; 2009, page 772.

51. CORRECT ANSWER: **A**

Class 1 code: **A5d** | Class 2 code: **A2**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1072.

52. CORRECT ANSWER: **B**

Class 1 code: **A5g** | Class 2 code: **B4**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1106.

53. CORRECT ANSWER: **B**

Class 1 code: **D6** | Class 2 code: **E6**

Reference: JAMA. Vol 285 No 19. 2001, page 2487.

54. CORRECT ANSWER: **A**

Class 1 code: **C2** | Class 2 code: **D1**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 310.

55. CORRECT ANSWER: **A**

Class 1 code: **B2e** | Class 2 code: **C1**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 4th ed. 2005, page 1873.

56. CORRECT ANSWER: **B**

Class 1 code: **A5c** | Class 2 code: **D3e**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 747.

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57. CORRECT ANSWER: **D**

Class 1 code: **A5b** | Class 2 code: **D3d**

Reference: Kirshblum S et al. Spinal Cord Medicine. 2nd ed. 2011, page 643.

58. CORRECT ANSWER: **B**

Class 1 code: **B2d** | Class 2 code: **C5d**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 992.

59. CORRECT ANSWER: **B**

Class 1 code: **B2a** | Class 2 code: **C4e**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 855.

60. CORRECT ANSWER: **B**

Class 1 code: **A2** | Class 2 code: **D3c**

Reference: Lin VW et al. Spinal Cord Medicine: Principles and Practice. 2nd ed. 2010, page 517.

61. CORRECT ANSWER: **C**

Class 1 code: **F** | Class 2 code: **E9**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 521.

62. CORRECT ANSWER: **C**

Class 1 code: **B2i** | Class 2 code: **D2**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 857.

63. CORRECT ANSWER: **C**

Class 1 code: **A2** | Class 2 code: **A4**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1302.

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64. CORRECT ANSWER: **B**

Class 1 code: **D1d** | Class 2 code: **A3d**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1363.

65. CORRECT ANSWER: **A**

Class 1 code: **A2** | Class 2 code: **E9**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1326.

66. CORRECT ANSWER: **C**

Class 1 code: **D4** | Class 2 code: **C6d**

Reference: Franklin DJ. Phys Med Rehabil Clin N Am. Vol 18. 2007, page 919.

67. CORRECT ANSWER: **D**

Class 1 code: **E3d** | Class 2 code: **E9**

Reference: Zasler ND et al. Brain Injury Medicine. 2nd ed. 2013, page 525.

68. CORRECT ANSWER: **C**

Class 1 code: **A5d** | Class 2 code: **B6**

Reference: Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle. 4th ed. 2013, page 672.

69. CORRECT ANSWER: **A**

Class 1 code: **E4** | Class 2 code: **C5d**

Reference: Lin VW et al. Spinal Cord Medicine: Principles and Practice. 2nd ed. 2010, page 516.

70. CORRECT ANSWER: **C**

Class 1 code: **A5I** | Class 2 code: **B4**

Reference: Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle. 4th ed. 2013, page 372.

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71. CORRECT ANSWER: **C**

Class 1 code: **A2** | Class 2 code: **E3a**

Reference: Kirshblum S et al. Spinal Cord Medicine. 2nd ed. 2011, page 411.

72. CORRECT ANSWER: **C**

Class 1 code: **B2d** | Class 2 code: **A4**

Reference: Frontera WR et al. Essentials of Physical Medicine and Rehabilitation. 3rd ed. 2015, page 486.

73. CORRECT ANSWER: **C**

Class 1 code: **F** | Class 2 code: **C2d**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1697.

74. CORRECT ANSWER: **D**

Class 1 code: **A3** | Class 2 code: **A2**

Reference: Lombard LA et al. Am J Phys Med Rehabil. Vol 84 No 10, page 800.

75. CORRECT ANSWER: **C**

Class 1 code: **B2a** | Class 2 code: **A1**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 913.

76. CORRECT ANSWER: **C**

Class 1 code: **B1b** | Class 2 code: **C1**

Reference: DeLee JC et al. DeLee & Drez's Orthopaedic Sports Medicine: Principles and Practice. 3rd ed. 2010., page 1789.

77. CORRECT ANSWER: **C**

Class 1 code: **E3a** | Class 2 code: **C4d**

Reference: Janicak PG et al. Principles and Practice of Psychopharmacotherapy. 4th ed. 2006, page 269.

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78. CORRECT ANSWER: **D**

Class 1 code: **E3b** | Class 2 code: **A2**

Reference: Medline Plus ([www.nlm.nih.gov](http://www.nlm.nih.gov)), page .

79. CORRECT ANSWER: **D**

Class 1 code: **E1d** | Class 2 code: **C1**

Reference: Zasler ND et al. Brain Injury Medicine. 2nd ed. 2013, page 651.

80. CORRECT ANSWER: **D**

Class 1 code: **E1a** | Class 2 code: **D3b**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 653.

81. CORRECT ANSWER: **B**

Class 1 code: **E1a** | Class 2 code: **C3e**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1148.

82. CORRECT ANSWER: **D**

Class 1 code: **B2j** | Class 2 code: **A2**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 960.

83. CORRECT ANSWER: **A**

Class 1 code: **B2a** | Class 2 code: **A2**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 25.

84. CORRECT ANSWER: **B**

Class 1 code: **A1** | Class 2 code: **C6e**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 4th ed. 2005, page 277.

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85. CORRECT ANSWER: **C**

Class 1 code: **B2c** | Class 2 code: **C4e**

Reference: DeLee JC et al. DeLee & Drez's Orthopaedic Sports Medicine: Principles and Practice. 3rd ed. 2010., page 362.

86. CORRECT ANSWER: **C**

Class 1 code: **A1** | Class 2 code: **E1b**

Reference: Elovic EP et al. PM&R Vol 9 No 1. 2009, page 848.

87. CORRECT ANSWER: **A**

Class 1 code: **B2f** | Class 2 code: **C3b**

Reference: Skirven TM. Rehabilitation of the Hand and Upper Extremity. 6th ed. 2011, page 1623.

88. CORRECT ANSWER: **C**

Class 1 code: **E2a** | Class 2 code: **A2**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 55.

89. CORRECT ANSWER: **D**

Class 1 code: **A4c** | Class 2 code: **A1**

Reference: Dumitru D, et al. Electrodiagnostic Medicine. 2nd ed. 2002, page 1051.

90. CORRECT ANSWER: **B**

Class 1 code: **B2e** | Class 2 code: **D2**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1145.

91. CORRECT ANSWER: **B**

Class 1 code: **C2** | Class 2 code: **C1**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 4th ed. 2005, page 787, 1835.

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92. CORRECT ANSWER: **A**

Class 1 code: **B2d** | Class 2 code: **C3d**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 433.

93. CORRECT ANSWER: **C**

Class 1 code: **A5f** | Class 2 code: **A1**

Reference: Alexander & Matthews. Pediatrics Rehabilitation, Principles and Practice. 4th ed. 2010, page 217.

94. CORRECT ANSWER: **C**

Class 1 code: **A5m** | Class 2 code: **B3**

Reference: Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle. 4th ed. 2013, page 638.

95. CORRECT ANSWER: **D**

Class 1 code: **A4b** | Class 2 code: **B1**

Reference: Kimura J. Electrodiagnosis in Diseases of Nerve and Muscle. 4th ed. 2013, page 663.

96. CORRECT ANSWER: **B**

Class 1 code: **A1** | Class 2 code: **A1**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 1307.

97. CORRECT ANSWER: **C**

Class 1 code: **E2a** | Class 2 code: **D3d**

Reference: DeLisa JA, ed., et al. Physical Medicine and Rehabilitation Medicine: Principles and Practice. 5th ed. 2010, page 2004.

98. CORRECT ANSWER: **D**

Class 1 code: **B1c** | Class 2 code: **C2a**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 453.

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99. CORRECT ANSWER: **B**

Class 1 code: **B2h** | Class 2 code: **A3e**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 143.

100. CORRECT ANSWER: **C**

Class 1 code: **A4a** | Class 2 code: **B4**

Reference: Braddom RL, ed. Physical Medicine and Rehabilitation. 4th ed. 2011, page 1089.

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## Part I Certification Examination Outline

### Approximate Target Weights

#### Class 1: Type of Problem/Organ System

##### A. Neurologic Disorders (30%)

1. Stroke
2. Spinal Cord Injury
3. Traumatic Brain Injury
4. Neuropathies
  - a) Mononeuropathies
  - b) Polyneuropathies
  - c) Carpal Tunnel Syndrome
  - d) Other Entrapment Neuropathies
5. Other Neurologic Disorders
  - a) Multiple Sclerosis
  - b) Motor Neuron Disease
  - c) Poliomyelitis
  - d) Guillain Barré Syndrome
  - e) Cerebral Palsy
  - f) Spina Bifida
  - g) Duchenne Muscular Dystrophy
  - h) Myotonic Muscular Dystrophy
  - i) Inflammatory Myopathies
  - j) Other Myopathies
  - k) Thoracic Outlet Syndrome
  - l) Plexopathy
  - m) Radiculopathy
  - n) Parkinson Disease
  - o) Other Neuromuscular Disorders

##### B. Musculoskeletal Medicine (32%)

1. Arthritis
  - a) Rheumatoid Arthritis
  - b) Osteoarthritis
  - c) Collagen Disease
  - d) Spondyloarthropathy
  - e) Other Arthritis

##### 2. Soft Tissue & Orthopedic Problems

- a) Acute Trauma
- b) Chronic Trauma/Overuse
- c) Complex Regional Pain Syndrome Type I (Reflex Sympathetic Dystrophy)
- d) Fibromyalgia/Myofascial Pain
- e) Burns
- f) Fractures
- g) Osteoporosis
- h) Spinal Disorders
- i) Strains/Sprains
- j) Tendinitis/Bursitis
- k) Orthopedic/Rheumatology
- l) Other Soft Tissue Disease

##### C. Amputation (5%)

1. Upper Extremity
2. Lower Extremity

##### D. Medical Rehabilitation (8%)

1. Cardiovascular
  - a) Ischemic Heart Disease
  - b) Other Heart Disease
  - c) Peripheral Arterial Disease
  - d) Venous Disease
  - e) Vascular Disorders
  - f) Lymphedema
  - g) Hypertension
  - h) Other Cardiovascular
2. Pulmonary Disease
  - a) Asthma
  - b) COPD
  - c) Pneumonia
  - d) Impaired Ventilation
  - e) Other Pulmonary Problems
3. GU / GI Disorders
  - a) Neurogenic Bladder
  - b) Renal Impairment/Failure
  - c) Neurogenic Bowel
  - d) Sexuality and Reproductive Issues
  - e) Other GU/GI Disorders

##### D. Medical Rehabilitation, cont'd

4. Cancer
5. Infectious Disease
6. Endocrine/Metabolic (Incl. Diabetes)
7. Transplant

##### E. Rehabilitation Problems & Outcomes (15%)

1. Physical Complications
  - a) Spasticity
  - b) Contracture
  - c) Hydrocephalus
  - d) Seizures
  - e) Pressure Ulcers
  - f) Posture/Balance Disorders
  - g) Abnormal Gait
  - h) Dysphagia/Aspiration
  - i) Bed Rest/Deconditioning
  - j) Paralysis/Weakness
  - k) Heterotopic Ossification
  - l) Other Physical Complications
2. Cognitive/Sensory Dysfunction
  - a) Speech and Language Disorders
  - b) Hearing Impairment
  - c) Visual Dysfunction
  - d) Cognitive Disorders
  - e) Sleep Disorders
  - f) Other Cognitive/Sensory Dysfunction
3. Psychiatric/Psychological Problems
  - a) Depression
  - b) Substance Abuse
  - c) Dementia/Pseudodementia
  - d) Disorders of Consciousness
  - e) Other Psych. Problems
4. Pain
5. Other

##### F. Basic Sciences (10%)

# Part I Certification Examination Outline, page 2

## Class 2: Focus of Question / Patient Management

### A. Patient Evaluation & Diagnosis (31%)

1. Physical Exam, Signs & Symptoms
2. Diagnosis & Etiology
3. Diagnostic Procedures
  - a) Cardiopulmonary Assess/Stress Test
  - b) Gait Analysis
  - c) Urodynamics
  - d) Lab Studies
  - e) Medical Imaging
  - f) Neuropsychological Evaluation
  - g) Other Diagnostic Procedures
4. Functional Evaluation
5. Prognosis (Incl. Outcome Measures)

### B. Electrodiagnosis (15%)

1. General Electrodiagnosis
2. Instrumentation
3. Nerve Conduction
4. Electromyography
5. Neuromuscular Transmission
6. H Reflex/F Wave
7. Special Studies

### C. Patient Management (32%)

1. Clinical Decision Making (Incl. Ethics)
2. Physical Agents
  - a) Heat/Cryotherapy
  - b) Hydrotherapy
  - c) Electrostimulation
  - d) Ultrasound
3. Therapeutic Exercise & Manipulation
  - a) Motor Control
  - b) Mobility and Range of Motion
  - c) Strength and Endurance
  - d) Manipulation and Massage
  - e) Traction/Immobilization

4. Pharmacologic Interventions
  - a) Analgesics
  - b) Antiseizure and Antispasmodics
  - c) Antibiotics
  - d) Psychopharmacologics
  - e) Anti-inflammatory
  - f) Other Medications
5. Procedural/Interventional
  - a) Nerve Blocks
  - b) Anesthetic Injections
  - c) Surgery
  - d) Other Procedural/Interventional
6. Behavioral/Psychological Modalities
  - a) Relaxation Therapy
  - b) Behavior Modification
  - c) Psychotherapy/Counseling
  - d) Education
  - e) Biofeedback

### D. Equipment & Assistive Technology (10%)

1. Prosthetics
2. Orthotics
3. Other Rehabilitation Technology
  - a) Shoes
  - b) Functional Electrical Stimulation
  - c) Transcutaneous Electrical Nerve Stimulation
  - d) Augmentative Communication
  - e) Ventilation
  - f) Wheelchairs/Seating
  - g) Other Devices

### E. Applied Sciences (12%)

1. Anatomy
  - a) Central Nervous System
  - b) Peripheral Nerves
  - c) Head/Neck
  - d) Shoulder
  - e) Arm
  - f) Wrist
  - g) Hand
  - h) Hip
  - i) Knee
  - j) Leg

1. Anatomy, cont'd
  - k) Ankle
  - l) Foot
  - m) Muscle
  - n) Bone
  - o) Back/Spine: General
  - p) Spine: Cervical
  - q) Spine: Thoracic
  - r) Spine: Lumbosacral
  - s) Other Anatomy
2. Physiology
  - a) Neurophysiology
  - b) Neuromuscular
  - c) Cardiovascular
  - d) Pulmonary
  - e) Genitourinary
  - f) Gastrointestinal
  - g) Skin and Connective Tissue
  - h) Bone and Joints
  - i) Autonomic Nervous System
  - j) Endocrine
3. Pathology/Pathophysiology
  - a) Neurophysiology
  - b) Neuromuscular
  - c) Cardiovascular
  - d) Pulmonary
  - e) Genitourinary
  - f) Gastrointestinal
  - g) Skin and Connective Tissue
  - h) Bone and Joints
  - i) Autonomic Nervous System
  - j) Endocrine
4. Kinesiology/Biomechanics
5. Histology
6. Epidemiology/Risk Factors
7. Nutrition
8. Biochemistry
9. Pharmacology
10. Research & Statistics
11. Growth & Development
12. Other Basic Science (eg, physics)