



EUROPEAN BOARD OF  
PHYSICAL & REHABILITATION MEDICINE

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FELLOWSHIP EXAMINATION

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**1. A 45 year old patient who is due to undergo a lower limb amputation has been referred to your PRM department. You will manage this patient on a PRM basis before and after surgery. Regarding the amputation: which one of the following statements is incorrect?**

- A. Most lower limb amputations are trans-tibial
- B. Hip disarticulation is performed in 20% of amputations
- C. Success of prosthetic fitting is less in patients with vascular disease than in patients with traumatic disease
- D. Success of prosthetic fitting decreases with age
- E. Amputations due to malignancy are rare (<1%)

ANSWER: B

**2. Regarding pre-surgical management: which one of the following statements is incorrect?**

- A. Closed amputation is the most commonly used technique in arterial disease
- B. The level of amputation has an effect on prosthetic appearance
- C. It is necessary to control pain before surgery
- D. Psychological support is a priority but only necessary after surgery
- E. Rehabilitation should begin before surgery

ANSWER: D

**3. Regarding oedema after amputation: which one of the following statements is incorrect?**

- A. An elastic bandage can be used to reduce oedema
- B. Reducing oedema is important to shape the limb for prosthetic fitting
- C. Reducing oedema does not increase pain
- D. Elastic socks have an effect on oedema
- E. Reducing oedema has no effect on wound healing

ANSWER: E

**4. Regarding complications after amputation: which one of the following statements is correct?**

- A. Using the prosthesis increases phantom limb pain
- B. Elastomeric liners avoid contact dermatitis
- C. Joint contracture is a rare complication
- D. Heterotopic ossification usually occurs after traumatic amputations
- E. The only treatment of neuroma is surgical excision

ANSWER: D

**5. Regarding the prosthesis: which one of the following statements is correct?**

- A. Prosthetic components are decided by the physician after clinical evaluation
- B. PTB (patellar tendon bearing) socket is used in a trans-femoral prosthesis
- C. SACH foot is a dynamic response foot
- D. Suction suspension is the most secure method for a trans-femoral prosthesis
- E. Ischial containment design is the only type of socket for a trans-femoral prosthesis

ANSWER: D

**6. A 45-year-old man complains of difficulty writing. He reports his trouble as cramping and aching of the right hand after prolonged use. He also says that his hand writing is no longer recognizable after a few paragraphs as it grows smaller and rougher. On examination he has no neurological impairment. His muscle strength, tone, limb co-ordination and sensation are preserved. Based on the history which one of the following is the most likely diagnosis?**

- A. Parkinson's disease
- B. Rheumatoid arthritis
- C. Anxiety disorder
- D. Task-specific dystonia
- E. Carpal tunnel syndrome

ANSWER: D

**7. You suspect writer's cramp. Which one of the following investigations will help to support the diagnosis?**

- A. Video-recording during action (writing) performance
- B. Brain MRI
- C. Needle EMG
- D. Serum CPK and myoglobin level determination
- E. Genetic test

ANSWER: A

**8. Which one of the following therapeutic approaches would you recommend in this case?**

- A. One-month strength training for wrist extensors
- B. Anti-cholinergic agents
- C. Immobilisation of wrist and fingers through splinting for about one month
- D. Atypical antipsychotics
- E. Botulinum toxin treatment of dystonic muscles

ANSWER: C

**9. Which one of the following should NOT be prescribed in this case?**

- A. Botulinum toxin injection
- B. Selective serotonin re-uptake Inhibitors (SSRI's)
- C. Anticholinergics
- D. Neuroleptics
- E. Benzodiazepines

ANSWER: D

**10. In this case, which one of the following is the main risk with botulinum toxin treatment?**

- A. Treatment can fail in 10-30%.
- B. Grip strength will be persistently impaired due to toxin diffusion into hand muscles
- C. Respiratory muscle paralysis may arise following toxin diffusion into the blood stream
- D. Local pain at the injection site may occur and last for several weeks

E. Injected muscles will be efficaciously treated, though dystonic activity will involve other muscle groups in the same limb.

ANSWER: A

**11. A patient with Facio-scapulo-humeral muscular dystrophy (FSHMD) is referred to you from the neurology department for a physical and rehabilitation medicine programme. In FSHMD, which one of the following statements is correct?**

- A. FSHMD is linked to the X-chromosome
- B. FSHMD is autosomal recessive
- C. FSHMD is a slowly progressive dystrophic myopathy
- D. The prevalence of FSHMD is estimated to be more than 100 per million
- E. Onset of symptoms is after age 40 years

ANSWER: C

**12. On clinical examination, which one of the following is incorrect?**

- A. In FSHMD, facial weakness is rare
- B. Facial weakness is not specific for FSHMD
- C. Shoulder girdle musculature can be involved
- D. Patients can have difficulty with eye closure
- E. Patients do not have ptosis

ANSWER: A

**13. Regarding the typical history of FSHMD: which one of the following statements is correct?**

- A. The disease only occurs in adults
- B. The patients show predominant involvement of facial and shoulder girdle musculature late in the course of the disease
- C. The lower limb and pelvic muscles are never involved
- D. The weakness of the upper limbs only affects the proximal muscles (shoulder girdle)
- E. Patients exhibit ophthalmologic disorders

ANSWER: E

**14. Regarding impairments associated with FSHMD: which one of the following is incorrect?**

- A. Spinal deformity is common (e.g. hyper-lordosis)
- B. Restrictive lung disease is frequent
- C. Cardiac abnormalities are possible in FSHMD
- D. There are no auditory (hearing) disorders in FSHMD
- E. Contractures are uncommon

ANSWER: D

**15. Regarding rehabilitation in FSHMD: which one of the following is correct?**

- A. Literature has shown the importance of a maximal resistance exercise programme

- B. Severe muscle cramping and heaviness in the extremities are signs of good rehabilitation
- C. The increased tendency towards obesity is not related to decreased mobility
- D. Bracing with an ankle-foot orthosis can be helpful
- E. Aerobic exercises such as walking, swimming or stationary bicycling are of no interest in muscular dystrophy

ANSWER: D

**16. A 45 year old female complains of sudden onset of acute right shoulder pain for two days. The VAS score is 90/100 (or 9/10) since the onset of pain. It affects her sleep and she cannot lie on her right shoulder. Examination of the shoulder is very difficult because of the severity of the pain. Abduction and elevation are severely limited. She has an extremely painful arc. Her upper limb reflexes are normal. Based on the above information, which one of the following can be excluded?**

- A. Acute bursitis of the shoulder
- B. Acute tendonitis of the long head of the biceps muscle
- C. Acute supraspinatus tendonitis
- D. A combination of bursitis and supraspinatus tendonitis
- E. Calcific supraspinatus Tendonitis

ANSWER: B

**17. With reference to the anatomy of the biceps muscle, which one of the following statements is FALSE?**

- A. The long head of the biceps arises from the supraglenoid tubercle
- B. The biceps tendon is contained in the region between the subscapularis and supraspinatus tendons
- C. The Biceps muscle is innervated by the musculo-cutaneous nerve
- D. The short head of the biceps arises from the superior glenoid labrum
- E. The Biceps muscle is supplied by the brachialis artery

ANSWER: D

**18. Regarding biceps tendonitis, which one of the following statements is FALSE?**

- A. The most common cause of biceps tendonitis is primary impingement at the coraco-acromial arch
- B. The typical presenting symptom of biceps tendonitis is a deep throbbing ache in the anterior shoulder
- C. Middle-age women are most likely to develop pathologic conditions of the biceps tendon
- D. Ultrasonography is the preferred imaging procedure to visualize the tendon lesion.
- E. The most common isolated clinical finding in biceps tendonitis is bicipital groove point tenderness when the arm is placed in 10 degrees of internal rotation

ANSWER: C

**19. Which one of the following is NOT included in the early management of biceps tendonitis in young adults?**

- A. Ice application
- B. Local injection of anaesthetic into the biceps tendon sheath
- C. Strengthening of scapular external rotators
- D. Local TENS application
- E. Plyometric exercises.

ANSWER: E

**20. When conservative treatment fails, biceps tenodesis may be considered for all of the following EXCEPT?**

- A. Young women
- B. Athletes
- C. Manual labourers
- D. Subjects with partial biceps tendon rupture
- E. Patients over 65 years of age.

ANSWER: E

**21. Which one of the following is NOT commonly confused with Restless leg syndrome?**

- A. Spinal stenosis
- B. Sleep apnoea syndrome
- C. Intermittent Claudication
- D. Fibromyalgia
- E. Peripheral neuropathy

ANSWER: B

**22. Which one of the following is a first-line treatment for pain in De Quervain's tenosynovitis?**

- A. Splinting of thumb and wrist
- B. Corticosteroid injection to the wrist
- C. Surgical release of the first dorsal compartment
- D. Corticosteroid injection to the tendon sheath
- E. Diclofenac 100 mg, one tablet daily for 3 weeks

ANSWER: A

**23. Regarding Autonomic Dysreflexia (AD) in a person with Spinal Cord injury: Which one of the following statements is TRUE?**

- A. The first sign alerting you to the onset of AD is a drop in baseline systolic blood pressure
- B. Hypertension associated with AD can lead to brain lesions
- C. AD usually appears within the first week of injury
- D. Flushing, sweating and nasal congestion can occur as a sign of increased sympathetic tone
- E. Above the level of injury, increased parasympathetic tone will lead to piloerection

ANSWER: B

**24. Treatment of autonomic dysreflexia (AD) in spinal cord injury includes all of the following EXCEPT?**

- A. Intrathecal baclofen infusion
- B. Removal of any constricting garments
- C. Emptying the bladder by intermittent catheterization
- D. Rapidly acting antihypertensive drugs

E. Sitting the patient upright

ANSWER: A

**25. Regarding brachial plexopathy: which of the following is FALSE?**

- A. trauma is the most common cause of brachial plexopathy
- B. brachial plexus is a complex structure originating from the C5 to C7 nerve roots
- C. brachial plexopathy can occur from a tumour of the lung or lymphoma
- D. the diagnosis of brachial plexopathy is supported by EMG
- E. range of motion exercises are needed to prevent contracture

ANSWER: B

**26. Functional Electrical Stimulation has been used successfully to achieve the following aims in persons with spinal cord injury, EXCEPT**

- A. To enable a person with C5 / C6 tetraplegia achieve a hand grasp.
- B. To enable a person with paraplegia or tetraplegia to stand, transfer and ambulate
- C. To control bladder contractions by stimulation of the sacral nerve roots
- D. To heal pressure ulcers
- E. To wean a high tetraplegia patient with respiratory failure on mechanical ventilation off the ventilator

ANSWER: D

**27. Regarding Restless Leg Syndrome; which one of the following is incorrect?**

- A. The characteristic symptom is an urge to move the legs
- B. Symptoms begin or get worse after a period of overwork
- C. The urge to move or have unpleasant sensations in the lower limbs are partially or totally relieved by walking
- D. The urge to move or have unpleasant sensations in the lower limbs are worse in the evening or during the night
- E. The urge to move or have unpleasant sensations may only occur in the evening or at night

ANSWER: B

**28. Which one of the following is not a key factor in minimizing displacement of the body's centre of gravity during gait?**

- A. Pelvic rotation in the horizontal plane
- B. Pelvic tilt in the frontal plane
- C. Early knee flexion (15°) during the first part of stance
- D. Increase in step duration
- E. Lateral displacement of the pelvis toward the stance limb

ANSWER: D

**29. When managing a person with Amyotrophic Lateral Sclerosis (ALS) who has dysphagia for thin liquids: Which one of the following is incorrect?**

- A. Suggest pureed or soft foods
- B. Encourage use of high-calorie foods
- C. Instruct the patient to extend the neck when eating
- D. Inform the patient of the high risk of aspiration and to avoid dry food
- E. Alert the patient and carers about the progression of dysphagia and the eventual need for enteral nutrition via Percutaneous Endoscopy Gastrostomy

ANSWER: C

**30. Using the Boston Classification System for Aphasia (Boston Diagnostic Aphasia Examination) :  
Wernicke's Aphasia is characterized by which one of the following?**

- A. Non fluent speech
- B. Good comprehension with agrammatic expression
- C. Telegraphic expression
- D. Poor comprehension with phonemic and semantic paraphasias
- E. Good comprehension and non fluent speech

ANSWER: D

**31. In a patient with fibromyalgia, which one of the following types of exercise would you prescribe?**

- A. Isometric exercise.
- B. Eccentric exercise.
- C. Aerobic exercise.
- D. Isokinetic exercise.
- E. Plyometric exercise.

ANSWER: C

**32. Regarding back school programmes; which one of the following statements is false?**

- A. They can improve pain and functional status of patients with low back pain of more than 2 weeks duration, with short term benefits
- B. They are very useful in patients with acute back pain
- C. They are more useful as a re-educational method than leaflets on posture advice
- D. They are very useful to manage pain and improve physical activity
- E. Best results are achieved with programmes that include both exercises and positive attitudes to deal with pain

ANSWER: B

**33. Which one of the following conditions is not included as a "Complex Regional Pain Syndrome"?**

- A. Südeck-Leriche's atrophy
- B. Shoulder hand syndrome.
- C. Dystrophic osteoarthritis.
- D. Retractable capsulitis.
- E. Scapula Alata Syndrome.

ANSWER: E



**34. Which one of the following statements is correct? On bone densitometry (DEXA) Osteoporosis is defined by a T score of:**

- A. Less than -1
- B. Between -1 and -2.5
- C. Score of -2.5 or less
- D. Less than -2.5 with one or more fractures.
- E. Less than -3.5 without fractures

ANSWER: C

**35. Regarding treatment of osteoporosis; which one of the following statements is false?**

- A. Postural re-education is advised to prevent over use of vertebral components
- B. Strengthening of para-vertebral muscles is advised to help prevent vertebral deformity
- C. Increase in tensional forces should be included in the rehabilitation programme
- D. Changes in sedentary habits should be advised
- E. Prescription of long periods of bed rest is recommended

ANSWER: E

**36. Regarding the study of movements, which one of the following statements is false?**

- A. Reflex movements are responses to well defined sensorial stimulation
- B. Automatic movements are generated by either innate neural networks or learning-generated neural networks
- C. Voluntary movements involve an action plan with motive, intentionality and decision
- D. The spine contribution to walking is important as a Central Pattern Generation
- E. Basal ganglia are not important in movement control

ANSWER: E

**37. In the treatment of an amputee due to vascular disease; which one of the following would you prescribe?**

- A. Progressive gait re-education: starting with the parallel bars, then one bar and one stick and then two sticks
- B. Wait at least 6 months, to begin to use the prosthesis due to loss of volume of the residual limb
- C. Avoid frequent hygiene of the residual limb due to the risk of infection
- D. As energy expenditure increases, try to keep the patient in a wheelchair as long as possible
- E. When the residual limb is painful after walking, you must insist on continuing to use the prosthesis and not allow wheelchair use

ANSWER: A

**38. A 75 year old independent man with diabetes had a right mid-thigh amputation for arteriopathic disease. Which one of the following is correct?**

- A. Avoid a prosthesis because it is too difficult to manage at his age
- B. Provide an aesthetic prosthesis to improve quality of life

- C. Provide a knee - locking prosthesis to reduce the risk of falls
- D. Provide a free-knee prosthesis to offer a fluid walk
- E. Provide a C-leg (electronic) prosthesis to offer better control

ANSWER: C

**39. You want to prevent a complex regional pain syndrome occurring in the arm of a 55 year old left hemiplegic woman, with left hemi-neglect. Which one of the following treatments would you prescribe?**

- A. Oral NSAID
- B. Calcitonin for 2 weeks
- C. Intra-articular injection of corticosteroids to the shoulder
- D. Daily left arm sensitive stimulation
- E. Cautious left arm positioning

ANSWER: E

**40. Your stroke patient starts to complain of localised shoulder pain on the hemiplegic side. You suspect an adhesive capsulitis (frozen shoulder). On clinical examination which one of the following do you expect to find limited on shoulder range of motion (ROM)?**

- A. Flexion
- B. Extension
- C. Internal rotation
- D. External rotation
- E. Abduction

ANSWER: D

**41. Following a stroke, functional recovery related to brain plasticity may take place**

- A. Within around 3 months
- B. Within around 6 months
- C. Within around 12 months
- D. Within around 18 months
- E. All life long

ANSWER: E

**42. A 38 year old worker fractured his left knee after a fall from scaffolding. An osteosynthesis was performed on this knee with a good result as seen on the post-op X-Ray. However, the recovery is quite slow and is associated with pain and limitation of range of motion (ROM). You see him 3 months after surgery. His knee is swollen, warm and red. The passive knee flexion is 80° and extension deficit is -10°. The patella has limited movement and the rest of the examination is difficult to interpret because of pain. He has no fever and no signs of inflammation in the laboratory tests. The most probable diagnosis is:**

- A. Septic arthritis
- B. Complex regional pain syndrome
- C. Osteosynthesis material rejection
- D. Surgery material left in situ
- E. Non fusion of fracture

ANSWER: B

**43. Using the old classification of ICDH, which one of the following statements is correct?**

- A. Disability is an impairment of mental function
- B. Disability is a problem that the person has at the environmental level
- C. Disability and handicap describe the same problem: a person has difficulties with Activity of Daily Living (ADL)
- D. Disability is an impairment of Body Functions
- E. Disability describes the limitation of Activities of Daily Living (ADL) at a personal level

ANSWER: E

**44. With regard to “sprouting” in neuromuscular regeneration, which one of the following is true?**

- A. The growing axon aims to compensate the degenerated axon and its connections
- B. An increase of acetylcholine receptors
- C. A type of sensory substitution
- D. A duplication of the neuron
- E. An increase of neuron activity

ANSWER: A

**45. Which part of the brain is supplied by the posterior cerebral artery?**

- A. Frontal Lobe
- B. Parietal Lobe
- C. Occipital Lobe
- D. Temporal Lobe
- E. Cerebellum

ANSWER: C

**46. In which one of the following will you find an association of clonus and hypotonia in the lower limbs?**

- A. A frontal lesion
- B. A pyramidal and extra-pyramidal syndrome
- C. A spinal cord injury
- D. A pyramidal syndrome and cerebellar lesion
- E. An occipital lesion

ANSWER: D

**47. What is a central pattern generator?**

- A. Neural system to improve vision
- B. Neural system to improve coordination
- C. A system to recover voluntary movement
- D. Neural network that sustains the basic pattern of gait
- E. Neural network for attentional system

ANSWER: D

**48. Which one of the following is the main excitatory neurotransmitter of the Central Nervous System?**

- A. Glutamate
- B. GABA
- C. Adrenaline
- D. Acetylcholine
- E. Serotonin

ANSWER: A

**49. Which one of the following therapeutic approaches should be advised in the early phase of recovery of a person with hemiparesis and neglect?**

- A. Decrease stimulation of neglected space, improve trunk control, passive and active stimulation of paretic part of the body
- B. Increase multi-sensory stimulation of neglected space and affected side, improve trunk control and passive and active stimulation of the paretic part of the body
- C. Stimulation of the non affected part of the body and space.
- D. Muscular electrical stimulation
- E. Increase the muscular strength of the affected side

ANSWER: B

**50. Which one of the following pathologies is usually associated with a poor outcome?**

- A. Traumatic Brain Injury;
- B. Intracerebral haemorrhage
- C. Post-anoxic brain injury
- D. Ischemic stroke;
- E. Sub-arachnoidal haemorrhage

ANSWER: C

**51. Which one of the following procedures should be used to facilitate swallowing in a patient with dysphagia?**

- A. Neck extension before drinking
- B. Neck flexion before drinking
- C. Rotation of the head
- D. Tongue protrusion
- E. Closing of the nose

ANSWER: B

**52. Regarding the ASIA (American Spinal Injury Association) Impairment Scale that is used in the assessment of Spinal Cord Injury patients, which one of the following statements is incorrect?**

- A. Complete: No motor or sensory function is preserved in the sacral segment S4-S5.

- B. Incomplete: Sensory but not motor function is preserved below the neurological level and includes the sacral segments S4-S5.
- C. Incomplete: Motor function is preserved below the neurological level and more than half of key muscles below the neurological level have a muscle grade less than 3
- D. Incomplete: Motor function is preserved below the neurological level and at least half of the key muscles below the neurological level have a muscle grade of 2 or more.
- E. Normal: Motor and sensory function is normal

ANSWER: D

**53. Which one of the following is not a consequence of neurogenic bladder?**

- A. urinary tract infections
- B. renal function failure
- C. ureteral stones
- D. upper tract dilatation
- E. decreased spasticity of the pelvic floor muscles

ANSWER: E

**54. Which one of the following tools is used to assess motor impairment after stroke?**

- A. Barthel Index
- B. Functional Independence Measure (FIM)
- C. Functional Assessment Measure (FAM)
- D. Frenchay Activities Index
- E. Fugl-Meyer scale

ANSWER: E

**55. Which one of the following statements best describes the Bobath or neuro-developmental rehabilitation technique?**

- A. It emphasizes normalization of increased tone using certain reflex inhibitory movement patterns
- B. It uses resistance to facilitate movements
- C. It aims to facilitate gross synergistic movement and return of muscle tone, especially in the early stage
- D. It uses tactile stimuli to facilitate a specific group of muscles to promote functional activation.
- E. It harnesses force to store energy using elastic properties of the myotendinous units.

ANSWER: A

**56. Which one of the following statements best describes 'tendinosis'?**

- A. Inflammation of the paratenon with associated pain, swelling and tenderness
- B. Inflammation of the tendon with associated vascular disruption and inflammation
- C. Intra-tendinous myxoid degeneration with a relative absence of inflammation
- D. Acute inflammation superimposed on chronic tendonitis
- E. Partial rupture of the tendon superimposed on chronic inflammation

ANSWER: C

**57. Which of the following is NOT an intrinsic muscle of the foot?**

- A. Flexor hallucis brevis
- B. Peroneus brevis
- C. Extensor digitorum brevis
- D. Abductor hallucis
- E. Flexor digitorum brevis

ANSWER: B

**58. In the administration of corticosteroids, which one of the following statements is false?**

- A. The smallest amount of corticosteroid should be used to control symptoms
- B. Corticosteroids should be applied locally rather than systemically whenever possible
- C. Corticosteroids should be given in the late evening to avoid suppression of adrenal hormone secretion
- D. If corticosteroids are taken for more than several weeks patients should be weaned off gradually over weeks
- E. Corticosteroid injection into the tendon should be avoided

ANSWER: C

**59. On examination of a 7 month old child, persistence of which one of the following primitive reflexes of postural responses would be of concern to you?**

- A. Moro
- B. Plantar grasp
- C. Placing
- D. Asymmetric tonic neck
- E. Parachute

ANSWER: A

**60. An active, 77 year old woman suffers from urinary incontinence following a stroke. She does not have a urinary infection and her post-micturition residual volume is not significant. Which one of the following would you prescribe first?**

- A. Oxybutinin 5 mg three times a day
- B. Intermittent catheterisation
- C. Programmed toileting with a fluid balance chart
- D. A permanent indwelling catheter
- E. Urodynamic studies

ANSWER: C

**61. A 20 year old, complete T4 paraplegic is in the 3rd trimester of pregnancy. The obstetrician has little experience with paraplegics and consults you. Which one of the following would you advise?**

- A. No special precautions since the risk of complications is not increased
- B. General anaesthesia with nitrous oxide at delivery
- C. Magnesium sulphate to treat hypertension during delivery
- D. Epidural anaesthesia to prevent hypertension associated with uterine contractions

E. Treatment of toxemia only, as all other hypertensive conditions will be self-limiting

ANSWER: D

**62. Which of the following statements regarding ultrasound is incorrect?**

- A. Its frequency is of the order of 1 MHz
- B. It can be used in a continuous or intermittent pulse mode
- C. Its application is functionally measured in W/cm<sup>2</sup>
- D. It never has a heating effect
- E. Its use is indicated in cases of inflammatory oedema

ANSWER: D

**63. Following a mastectomy, full active assisted shoulder range-of-motion exercises should be initiated:**

- A. In 24 hours
- B. After removal of the surgical drains
- C. In 3-4 weeks
- D. After the 2-month follow up
- E. When a frozen shoulder syndrome occurs

ANSWER: B

**64. All of the following conditions have been identified as leading directly or indirectly to the development of osteonecrosis of the hip EXCEPT:**

- A. Sickle cell anemia
- B. Dislocation or fracture of the hip
- C. Alcoholism or steroid use
- D. Systemic lupus erythematosus
- E. Recurrent transient osteoporosis of the hip

ANSWER: E

**65. Which one of the following exercise programmes would you first prescribe for a healthy elderly person with moderate lower limb osteoarthritis?**

- A. High step aerobics
- B. Uphill treadmill
- C. Stationary cycling
- D. Plyometrics in the standing position
- E. Full squats

ANSWER: C

**66. Which statement best describes myoclonus?**

- A. Involuntary, rhythmic oscillation causing movement of a body part about a fixed plane in space
- B. Sustained or intermittent muscle contractions that are exacerbated by particular movements or stress
- C. Irregular, rapid, flowing, non-stereotyped, and random involuntary movements

- D. Sudden, shock-like, brief, involuntary movements as a result of muscle contraction
- E. Tension in a muscle which gives way in little jerks when the muscle is passively stretched.

ANSWER: D

**67. Physical examination findings in a patient with vertigo of central origin would include:**

- A. diplopia, weakness, or ataxia.
- B. auditory symptoms such as hearing loss or tinnitus.
- C. cardiac arrhythmias and orthostasis.
- D. excessive perspiration, nausea, and dry mucous membranes
- E. extrapyramidal symptoms

ANSWER: A

**68. Temporary conduction block during electro-neuromyography is usually seen with**

- A. axonotmesis.
- B. nemalinic myopathy
- C. demyelination.
- D. muscular atrophy.
- E. neuronal hypotrophy.

ANSWER: C

**69. In relation with low back pain, which one of the following structures is not innervated and cannot transmit pain?**

- A. vertebrae
- B. the external part of the annulus of the discus
- C. the nucleus pulposus
- D. the anterior longitudinal ligament
- E. nerve root

ANSWER: C

**70. Reducing the strain of handling loads can include having the worker**

- A. lift instead of lower an object
- B. lower instead of carry packages
- C. carry instead of pull heavy objects on a cart
- D. lift instead of push objects
- E. push instead of pull a cart

ANSWER: E

**71. At what phase of the gait cycle is the pretibial muscle group most active?**

- A. At mid stance phase
- B. At toe off
- C. Immediately following heel strike



- D. At mid swing phase
- E. At late swing phase

ANSWER: C

**72. Which one of the following nerve palsy may result in winging of the scapula (Scapula alata) ?**

- A. Long thoracic nerve palsy
- B. Suprascapular nerve palsy
- C. Spinal accessory nerve palsy
- D. Median nerve palsy
- E. Radial nerve palsy

ANSWER: A

**73. Regarding the Quadriceps angle (Q angle), which one of the following statement is correct?**

- A. It is defined as the angle formed between the line connecting the anterior superior iliac spine and the center of the patella, and the line connecting the tibial tuberosity and the center of the patella
- B. The Q angle is measured with the knee in full flexion
- C. Normal Q angle ranges from 30 to 50 degrees
- D. Q angle accurately reflects the angle of the resultant quadriceps muscle force vector in the sagittal plane
- E. Q angle is useful to assess ligament tear

ANSWER: A

**74. Which structure within the central nervous system is NOT an area of pain modulation?**

- A. Substantia gelatinosa
- B. Thalamus
- C. Substantia nigra
- D. Nucleus raphe-magnus
- E. Frontal cortex

ANSWER: C

**75. A 32-year-old man with ankylosing spondylitis is referred to you for an exercise programme. What should your prescription emphasize?**

- A. Hand and wrist exercises
- B. Para-lumbar extension exercises
- C. Cervical and dorsal column flexion exercises
- D. Abdominal strengthening
- E. Quadriceps strengthening

ANSWER: B

**76. A young woman with a trans-radial amputation due to trauma presents 2 days after initial fitting of her prosthesis with complaints of discomfort. Your exam reveals that the discomfort arises over a bony prominence of the distal radius. Your initial recommendation is to:**

- A. add padding to the inner wall
- B. postpone the prosthetic treatment
- C. re-shape the socket's inner wall
- D. immediately replace the socket
- E. propose an osseo-integration (or osseo implantation)

ANSWER: C

**77. Which statement best describes the Parsonage-Turner syndrome (Acute brachial neuropathy)?**

- A. X-rays and MRI of the cervical spine often show abnormalities
- B. Usually the lumbar plexus is involved
- C. The lateral antebrachial cutaneous nerve response is always normal
- D. Patients usually present with pain in the shoulder area and paralysis of some muscles of the shoulder girdle
- E. Sharp pain occurs along the distal radius when the examining physician grasps the thumb and the hand is ulnar deviated brusquely

ANSWER: D

**78. Which functional assessment scale is most useful in the early rehabilitation of persons with severe traumatic brain injury?**

- A. Ashworth Scale
- B. Disability Rating Scale
- C. Karnofsky Performance Status Scale
- D. Roland Morris Disability questionnaire
- E. Traumatic Brain Injury Impairment Scale

ANSWER: B

**79. Using a computer mouse that is located too far to the side or too high on a desk places the worker at risk of:**

- A. low back pain
- B. ulnar nerve palsy
- C. De Quervain's syndrome
- D. anterior shoulder subluxation
- E. rotator cuff tendonitis

ANSWER: E

**80. In critical illness polyneuropathy: Which one of the following statements is correct?**

- A. Multiple focal entrapment neuropathies are present
- B. Respiratory failure never happens
- C. In 90% of patients there is a complete recovery
- D. There is denervation of distal muscles
- E. It is not related to Multiple Organ Dysfunction Syndrome

ANSWER: D

**81. A 70-year-old man has difficulty rising from a seated position and straightening his back, but he has no difficulty flexing his hip and knee. Which one of the following muscles is most likely to be weak?**

- A. Hamstrings
- B. Ileo-psoas
- C. Obturator internus
- D. Gluteus maximus
- E. Gluteus minimus

ANSWER: D

**82. During strengthening exercises, the maximal force of muscle contraction is:**

- A. greatest in isometric contraction
- B. greatest in isotonic concentric contraction
- C. greatest in eccentric contraction
- D. greatest in isokinetic concentric contraction
- E. equal in all types of contraction

ANSWER: C

**83. Which diagnostic procedure is the most sensitive for detecting a lateral lumbar disk herniation with nerve root impingement?**

- A. Triple phase bone scan (bone scintigraphy)
- B. Magnetic resonance imaging
- C. Computed tomography
- D. Discography
- E. Ultrasonography

ANSWER: B

**84. Concerning gout: Which one of the following statements is FALSE?**

- A. Recurrent episodes of acute arthritis of the first metatarsophalangeal joint is highly characteristic of gout
- B. Over half the patients have their first attack of gout in a the ankle, tarsum, wrist or knee
- C. Many joints may be affected by gout in asymptomatic patients
- D. Hyperuricemia is a mandatory sign to confirm the diagnosis of gout
- E. Differential diagnosis should include psoriatic arthritis

ANSWER: D

**85. Which one of the following statements is true with respect to neuropathic pain?**

- A. It responds well to traditional analgesics
- B. It is always somatic
- C. It derives from noxious chemical stimuli
- D. It is evident in post-thalamic stroke pain
- E. It should never be treated with opioids

ANSWER: D

**86. Which one of the following drugs may increase the risk of cardiovascular complications in older individuals?**

- A. Acetaminophen
- B. Acetyl salicylic Acid
- C. Celecoxib
- D. Gabapentin
- E. Codeine

ANSWER: C

**87. Regarding pain treatment in older people: Which one of the following statements is incorrect?**

- A. Acetaminophen should be considered as initial and ongoing pharmacotherapy in the treatment of persistent pain, particularly musculoskeletal pain,
- B. All patients with localized neuropathic pain are candidates for topical NSAIDs
- C. All patients with moderate-severe pain, pain-related functional impairment or diminished quality of life due to pain should be considered for opioid therapy
- D. Tricyclic antidepressants should be avoided in elderly patients because of higher risk for adverse effects
- E. Systemic corticosteroids should be reserved only for patients with pain-associated inflammatory disorders or metastatic bone pain.

ANSWER: B

**88. Regarding Delayed Onset Muscle Soreness (DOMS): Which one of the following is not characteristic?**

- A. It appears in the first 24 hours after exercise
- B. It produces muscle shortening
- C. It increases in intensity in peaks from 24 to 72 hours
- D. It is prevented by stretching
- E. It can be attenuated or prevented by gradually increasing the intensity of a new exercise programme

ANSWER: D

**89. In pressure ulcers, necrotic tissue removal is contraindicated:**

- A. in advanced cellulitis with sepsis
- B. in Immuno-compromised individuals
- C. in the presence of severe spasticity
- D. when infection is life threatening
- E. in case of clear wounds before surgical closure

ANSWER: C

**90. Regarding Becker's muscular dystrophy (BMD); which one of the following statements is true:**

- A. It has a mutation of the same gene that causes Duchenne Muscular Dystrophy but is a more slowly progressive and milder disorder
- B. There is generally an onset of weakness in young adults between 20 to 25 years of age

- C. Patients never present ECG abnormalities
- D. Dystrophin is normal in quantity and quality
- E. It is an X-linked dominant inherited disorder

ANSWER: A

**91. Finger adduction and abduction is controlled by which of the following nerves?**

- A. Radial
- B. Ulnar
- C. Musculocutaneous
- D. Median
- E. Axillary

ANSWER: B

**92. Which one of the following statements regarding the 6-minute walking test IS incorrect?**

- A. It evaluates the tolerance of effort in patients with respiratory pathology
- B. It measures fatigue and dyspnoea
- C. It allows one to assess indirectly maximal oxygen consumption
- D. It allows one to assess if home oxygen-therapy is needed
- E. It requires direct arterial blood analysis of oxygen

ANSWER: E

**93. A 29 years old man with a diagnosis of spinal cord injury developed paroxysmal hypertension, headache, sweating and facial flushing. Which one of the following might be the level of the injury?**

- A. T4
- B. T7
- C. T10
- D. T12
- E. L2

ANSWER: A

**94. Which of the following is not a risk factor for stroke?**

- A. age
- B. transient ischemic attack
- C. cigarette smoking
- D. hyperthyroidism
- E. diabetes mellitus

ANSWER: D

**95. With regard to helping a patient with severe traumatic brain injury achieve a gesture: Which one of the following statements is the most promising?**

- A. Guiding the execution of the gesture with constant oral feed-back and avoiding physical assistance to the patient
- B. Try to obtain a gesture as precisely as possible, even if you need to assist the patient physically
- C. Organize the gesture so as to avoid as much as possible all the sensitive and proprioceptive afferent information generated by the movement
- D. Mobilize passively the patient's limb repeatedly and precisely to help him to learn and achieve the gesture
- E. Increase the muscle tone by electrically induced contractions

ANSWER: B

**96. Ankle clonus in a patient with spastic hemiplegia can be reduced by local injection of botulinum toxin or phenol. Which one of the following mechanisms is shared by the two drugs?**

- A. both use the same molecular mechanism
- B. both block the action potentials of the motor axons
- C. both affect predominantly interfusal muscle fibres
- D. both reduce the amplitude of the motor action potential
- E. both affect axonal transport systems

ANSWER: D

**97. Which one of the following is not a contraindication for entry into a cardiac exercise programme?**

- A. Unstable angina
- B. Resting diastolic blood pressure > 100 mmHg
- C. Aortic stenosis
- D. Active pericarditis
- E. Well-controlled diabetes

ANSWER: E

**98. In which one of the following respiratory conditions is intermittent positive pressure breathing (IPPB) contraindicated?**

- A. Amyotrophic lateral sclerosis
- B. Asthma
- C. Cystic fibrosis
- D. Pneumothorax
- E. Respiratory insufficiency

ANSWER: D

**99. Which one of the following positions is best to clear the apical segment of the inferior pulmonary lobe?**

- A. Supine position with the knees slightly flexed
- B. Sitting straight
- C. Standing
- D. Prone position with the knees slightly flexed
- E. Opposite lateral decubitus

ANSWER: D

**100. In which one of the following situations is incentive spirometry contraindicated?**

- A. Immediately after surgery
- B. In chronic obstructive pulmonary disease (COPD)
- C. In diaphragmatic functional diseases
- D. In bronchial hygiene therapy
- E. In oesophageal varices

ANSWER: E