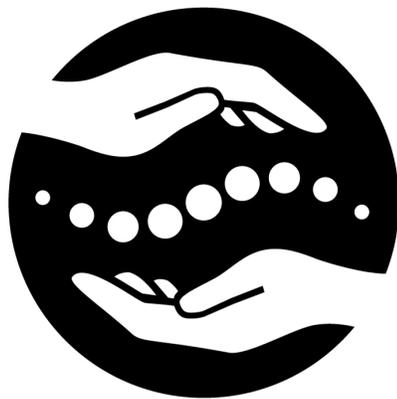


**Advanced Diploma of Manual &
Manipulative Therapy**
Sample Advanced Level MCQ Examination



Orthopaedic Division
CANADIAN PHYSIOTHERAPY ASSOCIATION

Sample Advanced Level MCQ Exam

CASE QUESTION SECTION: Questions 1 to 12 refer to cases.

CASE 1

A 30-year-old male client presents with bilateral lower back pain. This pain occurs following periods of sitting at a computer for longer than 20 minutes.

QUESTIONS 1 TO 4 refer to CASE 1

1. What is the typical position of the lumbar spine and pelvis in sitting?
 - A. The pelvis tilts anteriorly and the lumbar lordosis increases.
 - B. The pelvis tilts posteriorly and the lumbar lordosis decreases.
 - C. The pelvis tilts posteriorly and the lumbar lordosis increases.
 - D. The pelvis tilts anteriorly and the lumbar lordosis decreases.

2. According to the McKenzie approach, which of the following syndromes is the client likely experiencing?
 - A. Compression syndrome
 - B. Postural syndrome
 - C. Dysfunction syndrome
 - D. Derangement syndrome

3. What is the most likely consequence of maintaining a prolonged sitting posture at work?
 - A. Degeneration of the facet joints of the lower lumbar spine
 - B. Shortening of the erector spinae muscles and underactivated multifidus muscles
 - C. Loss of lumbar extension due to adaptive shortening of the soft tissues
 - D. Development of a large posterolateral disc herniation

4. What is the most appropriate action for the physiotherapist to take?
 - A. Teach the client how to perform extension exercises in prone.
 - B. Perform passive extension mobilizations to restore lumbar extension.
 - C. Teach the client how to perform posterior pelvic tilt exercises in sitting.
 - D. Encourage frequent standing and extension of the spine.

END OF CASE 1

CASE 2

A client presents with lateral foot pain 2 months following a plantar flexion/inversion ankle sprain. Walking uphill is the most aggravating activity. Assessment reveals that the cuboid is subluxed in a plantar direction relative to the calcaneus.

QUESTIONS 5 TO 8 refer to CASE 2

5. During what stage of gait does the cuboid need to dorsally glide in relation to the calcaneus?
 - A. Heel strike
 - B. Midstance
 - C. Heel off
 - D. Toe off

6. It is determined that articular glide manipulation is appropriate for the client. Which one of the following techniques should the physiotherapist perform?
 - A. Calcaneocuboid distraction
 - B. Dorsal thrust of calcaneus on cuboid
 - C. Loose body manipulation
 - D. Dorsal thrust of cuboid on calcaneus

7. Which of the following presents the best indication for manipulation?
 - A. The foot pain has been present for 2 months.
 - B. The pain is aggravated by mechanical forces.
 - C. The calcaneocuboid joint has a reduced dorsal glide.
 - D. Mobilization has proven to be ineffective.

8. Three days following the manipulation, the client reports being able to walk uphill without pain. Which of the following best explains this situation?
 - A. The neurophysiological effect reduces calf tightness.
 - B. The stimulation of mechanoreceptors decreases capsular fibrosis.
 - C. The release of endorphins decreases pain.
 - D. The joint mobility is restored.

END OF CASE 2

CASE 3

A 44-year-old female nurse presents with a two week complaint of left sided neck pain and headache in the left suboccipital region. There is no history of trauma but she noticed the pain started the day after getting her hair done. The pain was dull but became worse with right rotation of her neck and when looking up. The patient denied any dizziness, diplopia, drop attacks, dysarthria, dysphagia, facial numbness, or nystagmus, but did describe some nausea with neck movements. She is taking medication for high cholesterol. On examination, it was noted that when the patient protruded her tongue it deviated to one side.

QUESTIONS 9 TO 12 refer to CASE 3

9. In this scenario, which cranial nerve is at fault?
 - A. IX
 - B. X
 - C. XI
 - D. XII

10. Why would you examine cranial nerve function in this patient?
 - A. Normal cranial nerve function is linked to adequate blood supply via the vertebrobasilar system
 - B. The vertebral artery supplies blood to the tongue muscle
 - C. Cranial nerve dysfunction is a primary cause of headaches
 - D. Fasciculation of the ipsilateral side of the tongue would suggest damage to the cranial nerve nuclei

11. Which of the following tests, if positive, would implicate the cervical spine as the source of the patient's nausea during head movement?
 - A. The Romberg's Test performed in standing position with the eyes closed
 - B. After being fitted with a cervical collar the nausea improves
 - C. Hautard's Test performed with the patient sitting, eyes closed and neck extended
 - D. The vertebral artery test, including extension and rotation

12. Considering the subjective and objective findings presented by this patient, what would be the appropriate course of action for the physiotherapist to take?
- A. Revisit history for additional risk factors of arterial disease. Check patient's blood pressure. Complete the neurological examination starting with the least provocative test progressing to more aggressive procedures. Contact patient's physician and share your findings.
 - B. Call 911. Do not allow patient to leave. Monitor the patient's vitals. Calm patient. Write a note to the emergency room physician and pin to the patient's clothes. Have someone wait with the patient until ambulance arrives.
 - C. Apply the vertebral artery stress test. If the test is negative complete the neurological examination starting with the least provocative test progressing to more aggressive procedures. Contact the patient's physician and share your findings.
 - D. Apply the vertebral artery stress test. If the test is positive have someone call 911. Monitor the patient's vital signs until the ambulance arrives. Calm the patient and do not allow her to leave. Contact a family member and the patient's doctor.

END OF CASE 3

INDEPENDENT QUESTION SECTION: Questions 13 to 40 do not refer to a case.

13. A 65-year-old client presents with disequilibrium and dizziness for the past few days. He reports having trouble walking. He was recently treated for neck injuries sustained from a motor vehicle collision. Which of the following are likely to be positive for cerebellar disease?
- A. Berg balance test, and Dix-Hallpike test
 - B. Presence of nystagmus, and finger to nose test
 - C. Combined neck rotation and extension test, and cranial nerve test
 - D. Body under head rotation, and heel to shin test
14. What are non-motor functions of the suboccipital and the craniocervical flexor muscles?
- A. They create flexion and extension motion within the craniocervical region.
 - B. They produce and control postural reflexes.
 - C. They act primarily as sensory receptors for position, direction, and velocity of movement.
 - D. They create rotation at the atlantoaxial joint.

15. Which one of the following statements regarding a patient presenting with moderate OA of the ulnohumeral joint is most accurate?
- A. A loss of extension is often present with this condition.
 - B. It is unusual to experience an episode of locking with this condition.
 - C. This condition generally occurs with a history of fracture at this articulation.
 - D. The abducted ulna is a frequent contributor to this condition.
16. A 20-year-old client comes to a physiotherapy clinic reporting headaches and neck pain. Postural evaluation shows a significant forward head posture. Which one of the following muscles is likely to be tight given this scenario?
- A. Rhomboids
 - B. Rectus capitus posterior major
 - C. Longus colli
 - D. Longus capitus
17. When considering manipulation to the spine, what are the metabolic contraindications that must be considered by the manipulative physiotherapist?
- A. Paget's Disease, Wallenberg's Syndrome and osteoporosis
 - B. Ehlers-Danlos Syndrome, Marfan's Syndrome and osteogenesis imperfecta
 - C. Achondroplasia, Ehlers-Danlos Syndrome, and osteogenesis imperfecta
 - D. Paget's Disease, osteoporosis and bone disease
18. Which one of the following mobilization techniques will assist in restoring symmetrical opening when there is a mandibular deviation to the left caused by capsular restrictions.
- A. Left joint caudal distraction, right joint dorsal glide
 - B. Right joint anteroinferior translation, left joint compression
 - C. Left joint caudal distraction, left joint anteroinferior translation
 - D. Left joint caudal distraction, left digastric trigger release
19. Which one of the following conditions, when associated with osteoporosis, is important to consider when planning manual therapy treatment in the thoracic spine?
- A. Ten year history of Crohn's disease
 - B. Obesity
 - C. Hypertension
 - D. Congenital hypermobility syndrome

20. A client has a 4-week history of gluteal tendinopathy. Which one of the following statements is true regarding the pathophysiology of his gluteal tendon?
- A. There is a decrease in ground substance within the collagen tissue.
 - B. There is an increase in poor quality blood vessels.
 - C. There is a release of histamine and bradykinins.
 - D. There is a release of prostaglandins.
21. When describing physiological flexion in the lumbar spine which of the following statements is most correct?
- A. The primary restraint to this motion is the supraspinous ligament at >20%.
 - B. The sagittal orientation of the zygapophyseal joints limits the anterior translation component.
 - C. There is a sagittal plane axis located in the posterior aspect of the disc.
 - D. Arthrokinematically, there is an anterior superior glide of the inferior articular facet along the plane of the superior articular facet below.
22. A baseball pitcher with recurrent shoulder pain, presents with painful weakness on resisted abduction at 90 degrees of arm elevation with the thumb turned down, as well as painful weakness on resisted lateral rotation. What approach should the physiotherapist use to assist the client?
- A. Apply therapeutic taping and develop a rotator cuff strengthening exercise program.
 - B. Mobilize the posterior capsule and develop a stretching and strengthening exercise program.
 - C. Evaluate the individual's posture and throwing mechanics and develop a specific exercise program.
 - D. Use deep tendon friction massage to the affected soft tissues and develop a stretching exercise program.
23. Which of the following best describes the costotransverse (CT) joint of the 4th rib during inspiration?
- A. Transverse process facet is convex, posterior roll of the rib and superior glide of the rib at CT joint.
 - B. Transverse process facet is concave, posterior roll of the rib and inferior glide of the rib at CT joint.
 - C. Transverse process facet is concave, anterior roll of the rib and superior glide of the rib at CT joint.
 - D. Transverse process facet is convex, anterior roll of the rib and inferior glide of the rib at CT joint.

24. A 50-year-old active client presents to the clinic reporting shoulder pain. Fatigability is noted during testing of resisted external rotation of the shoulder. What is the most appropriate treatment to implement first?
- A. Friction of the muscle belly of teres minor
 - B. Specific traction at C6-7
 - C. Activity and postural modification
 - D. Ultrasound to the infraspinatus tendon
25. A 12-year-old female client with bilateral retropatellar pain presents with an increased Q angle and weak posterior gluteus medius muscles. As she stands on one leg, the femur medially rotates. If the tibia rotates congruently, in what position will the tibia be?
- A. Varus
 - B. Valgus
 - C. Medial rotation
 - D. Lateral rotation
26. A 55-year-old client reports left anterolateral neck pain extending into the arm and forearm when he is cross-country skiing. Upper quadrant scanning exam and biomechanical assessment fail to reproduce his symptoms or relevant signs. What should the physiotherapist do?
- A. Have the client jog on the treadmill until symptoms reoccur.
 - B. Ask client to simulate the arm activity in cross-country skiing.
 - C. Teach client upper extremity pre-activity warm-up exercises.
 - D. Refer to the family physician for further investigation.
27. A client reports a fall onto the outstretched arm with glenohumeral compression in abduction, extension and external rotation. There is an intact long head of the biceps. The client reports vague deep pain, apprehension and painful clicking on movement, and a "dead arm" feeling. What is the most likely cause of these manifestations?
- A. Partial tear of the supraspinatus muscle
 - B. Severe impingement below the coracoacromial arch
 - C. Type 1 SLAP lesion
 - D. Multidirectional instability
28. A computer programmer reports hand pain and numbness at night. Assessment reveals altered sensation in the palmar radial 3½ digits, wasting of the thenar muscles and positive Tinel's sign. What is the most effective treatment strategy?
- A. Strengthening exercises for the upper extremity
 - B. Mobilization of the upper thoracic spine
 - C. Cervical traction
 - D. Ergonomic advice and wrist bracing

29. A patient presents with a positive hip flexion/adduction quadrant test. Combined with this finding, which one of the following would lead the therapist to suspect a tear of the acetabular labrum?
- A. Pain on palpation iliopsoas
 - B. Capsular pattern hip
 - C. Morning stiffness
 - D. Subjective history of clicking and catching
30. Which one of the following statements regarding a patient presenting with acute, traumatic varus instability of the elbow is most accurate?
- A. It only involves a tear of the radial collateral ligament.
 - B. It can be associated with fracture of the coronoid process.
 - C. It involves the annular ligament in addition to the radial collateral ligament.
 - D. It requires tearing of the radial collateral ligament and lateral capsule.
31. What would be the best indication for doing a ventral thrust (grade V) of the lunate on the radius?
- A. Traumatic onset of decreased wrist flexion
 - B. No response to dorsal glide mobilizations on the lunate
 - C. Total loss of palmar glide of the lunate
 - D. Palmar fixation of the lunate
32. The dorsal horn of the spinal cord is divided in six laminae. Which laminae receives impulses primarily from large afferent (A alpha and beta) fibres?
- A. Lamina I, V
 - B. Lamina II, III
 - C. Lamina III, IV, V
 - D. Lamina V, VI
33. What are the consequences of training a client's muscle with low force, high repetition weight exercise?
- A. Predominantly recruits the slow twitch, tonic type I fibres
 - B. Predominantly recruits the slow twitch, tonic type III fibres
 - C. Predominantly recruits the fast twitch, phasic type IIA fibres
 - D. Predominantly recruits the fast twitch, phasic type IIB fibres
34. Following a rear-end motor vehicle collision, trauma can occur to structures in and around the cervical spine. During the hyperextension phase of the injury mechanism, which one of the following groups of structures may be injured by compressive forces?
- A. The zygapophyseal joints surfaces
 - B. The anterior intervertebral disc
 - C. The esophagus
 - D. The zygapophyseal joint capsules

35. A patient presents with left moderate genu valgum, ipsilateral hip drop and bilateral foot pronation. The left knee joint is moderately swollen and 'thickened'. The pain is described as 'achy' and a grating noise occurs when climbing stairs. Which one of the following would be used to describe the pathology of this presentation?
- A. Bucket-handle, radial meniscal tears
 - B. Rheumatoid arthritis, elevated sedimentation rate
 - C. Bleeding into the joint and muscle
 - D. Cartilage fibrillation, joint laxity, and osteophytes
36. The acromioclavicular joint is often classified as a complex joint. Which of the following best describe a complex joint?
- A. The joint contains a surface that is concavo-convex.
 - B. The joint contains multiple articulating surfaces in a single capsule.
 - C. The joint contains an intra-articular disc.
 - D. The joint contains one pair of articulating surfaces.
37. A 55-year-old female post-menopausal sedentary client reports pain of insidious onset in thoracic region. Assessment reveals a stiff mid-thoracic kyphosis. Which is the most appropriate treatment?
- A. Active prone extension and scapular retraction exercises
 - B. Gentle mobilization and postural re-education
 - C. Hydrotherapy program and stationary cycling
 - D. Abdominal strengthening exercises and hip flexor stretches
38. A client experiences difficulty going down stairs due to weakness of the quadriceps muscles. Which of the following should be included in a training program?
- E. Isometric quadriceps training and isotonic weight training
 - F. Slow stepping up and isotonic weight training
 - G. Prestretching quadriceps followed by concentric strengthening
 - H. Strengthening the quadriceps while lengthening under tension
39. A client presents with right buttock, groin and posterior thigh pain following a recent fall on her right buttock. She reports that 3 months ago she was successfully treated with lumbar spine mobilization for right lumbosacral, buttock and leg pain to the medial ankle. What should the physiotherapist do initially?
- A. Recommend acupuncture treatments.
 - B. Refer client to her family physician.
 - C. Assess the right sacroiliac joint.
 - D. Apply mechanical traction.

40. Which of the following assessment procedures can relieve the symptoms of Thoracic Outlet Syndrome?
- A. Manual correction of scapula
 - B. Strength test of middle fibres of trapezius
 - C. Gleno-humeral stability tests
 - D. Resisted isometric test of ipsilateral scalenes

END OF EXAMINATION

Answer key follows on the next page.

Answer Key:

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|--------------|--------------|--------------|--------------|
| 1. B | 11. B | 21. D | 31. C |
| 2. B | 12. A | 22. C | 32. C |
| 3. C | 13. B | 23. B | 33. A |
| 4. D | 14. C | 24. C | 34. A |
| 5. B | 15. A | 25. C | 35. D |
| 6. D | 16. B | 26. D | 36. C |
| 7. D | 17. D | 27. C | 37. B |
| 8. D | 18. C | 28. D | 38. D |
| 9. D | 19. A | 29. D | 39. C |
| 10. A | 20. B | 30. B | 40. A |