



AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF REHABILITATIVE MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF SEMESTER EXAMINATIONS MAY TO AUGUST 2023

UNIT CODE: PHT 214

UNIT NAME: MOVEMENT SCIENCE 2

DATE: MONDAY 7TH AUGUST 2023

START: 9:00AM

STOP: 11:00AM

INSTRUCTIONS

- 1. All students will have two (2) hours to complete the examination**
- 2. Attempt all questions as per the instruction**
- 3. It is the student's responsibility to report any page and number missing in this paper.**
- 4. Check that the paper is complete**
- 5. Total number of pages is 6 including the cover.**
- 6. Read through the paper quickly before you start.**

Section 1 (20 Marks)

1. Poor posture affects which body systems.
 - a) Respiratory
 - b) Circulatory
 - c) Nervous system
 - d) All the above
2. What of the three different parts of the spine
 - a) Cervical, Thoracic and Lumbar spine
 - b) Upper, Middle and lower
 - c) Ventral, dorsal and lateral
 - d) None of the above
3. Exaggeration of a backward curve or decrease of the forward curve is
 - a) Lordosis
 - b) Kyphosis
 - c) Rounded shoulders
 - d) Scoliosis
4. A Physiotherapist is treating a patient following a right Total Hip Replacement (THR) and is taking goniometric measurements of the hip. To have normal gait on level surfaces, what hip extension range will the client need?
 - a) 0 degrees
 - b) 5 degrees
 - c) 20 degrees
 - d) 30 degrees
5. What are the two structures that comprise of the otolith organs.
 - a) Cochlea and cilia
 - b) Utricle and cochlea
 - c) Saccule and utricle
 - d) Cilia and saccule

6. Which of these parts of the body plays a key role in balance
 - a) Labyrinth
 - b) Pituitary gland
 - c) Middle ear
 - d) Middle ear cavities
7. At heel strike, what muscle is contracting at the ankle and what type of muscle contraction is occurring?
 - a) anterior tibialis-concentric
 - b) anterior tibialis-eccentric
 - c) gastrocnemius-concentric
 - d) gastrocnemius-eccentric
8. During toe off; the knee flexes to _____ and the plantar flexes to _____
 - a) 40 degrees and 60 degrees respectively
 - b) 40 degrees and 20 degrees respectively
 - c) 60 degrees and 40 degrees respectively
 - d) 20 degrees and 40 degrees respectively
9. Period in gait cycle when both lower extremities are in contact with the walking surface in the reference limb is referred to as
 - a) Step length
 - b) Double stance
 - c) Cadence
 - d) Stride length
10. A gait cycle is
 - a) The period in gait when both lower extremities are in contact with the walking surface in the reference limb
 - b) The number of steps per unit of time
 - c) A series of motions that occur between the time of the heel strike of reference limb until heel strike of the same reference limb
 - d) Distance between successive contact points of opposite limbs

11. Which of the following does not optimize lifting conditions?
- a) Holding the load close to the body
 - b) Picking up the load with both hands
 - c) Twisting the trunk when lifting.
 - d) Lifting loads with handles.
12. Domain of ergonomics which deals with human sensation, perception, emotion, information processing, learning, memory and motor skills, known as:
- a) Physical ergonomics
 - b) Organisational ergonomics
 - c) Cognitive ergonomics
 - d) Community ergonomics
13. There are seven functional movement patterns in the functional movement screen used for the assessment for general dynamic and functional capacity. Which of the following pattern is NOT part of the seven movement patterns?
- a) Deep squat
 - b) Shoulder mobility
 - c) Rotary stability
 - d) Neck mobility
14. A physiotherapist working in a neurological clinic discovers that their patient is experiencing difficulty to raise both feet off the floor while walking. They compensate by lifting the legs higher to clear the foot from the floor and the feet hang downward while walking. Describe the gait they are walking with
- a) Hemiplegic gait
 - b) Equine gait
 - c) Parkinson's gait
 - d) Diplegic gait
15. Of the symptoms listed below one of them is not a contraindication of the 6-minute walk test for endurance. Which one is a contra-indication
- a) Muscle weakness
 - b) Poor gait walking pattern
 - c) Stroke
 - d) Acute chest pain

16. The following barriers on the 6-minute walk test led to the development of the 2-minute walk test. Which of these was not a barrier.
- Behavioural concerns
 - Paediatric population
 - Cardiovascular disorders
 - Reduced ambulatory ability
17. Which of the following is not part of the 4-grade scoring system in Selective Functional Movement Assessment (SFMA)
- Functional and Non-painful
 - Unstable and Non-painful
 - Functional painful
 - Dysfunctional painful
18. Which one of the following is not a requirement of dynamic balance
- Good sleeping patten and sound psychological and mental conditions
 - Sufficient power in the muscle of the body
 - Normal impulses from the vestibular system and visual system concerning movement and environment
 - Central coordinating mechanism including cerebellum and basal ganglia
19. Which of the following statements is true about the Base Of Support (BOS)
- The narrower the feet the better the base of support
 - As the center of mass gets higher the base of support improves
 - Maintaining a high center of gravity improves the base of support
 - As long as the line of gravity is within the base of support the person remains stable
20. In posterior pelvic tilt the _____ muscles are tight and _____ are weak
- Hamstring and hip flexors
 - Hip extensors and hip flexors
 - Hip extensors and lumbar extensors
 - Hip flexors and lumbar extensors

SECTION 2 (30 marks)

21. Describe ataxic gait (2 Marks)
22. Name 2 types of muscle imbalance (2 Marks)
23. What is the difference between dynamic balance and static balance (4Marks)
24. List 5 factors that influence posture (5Marks)
25. List 5 goals of a normal posture (5 Marks)
26. Two tools are used in ergonomics evaluation. Name and explain each one of them (4 Marks)
27. Explain the upper crossed syndrome (8 Marks)

Section 3 (50 Marks)

28. Describe what normal muscle action that is occurring during stance phase of the gait cycle. (Include what motion is occurring at each joint, what muscles produce the motion and the type of muscle contraction.) (25 Marks)
29. Write a short essay on the lower crossed syndrome outlining the following (25 Marks)
 - I. What is lower crossed syndrome
 - II. Which musculature of the body gets affected by this syndrome
 - III. Name the muscles that are shortened/tight or lengthened/weak
 - IV. Name factors that are associated with this syndrome
 - V. Name and explain the signs and symptoms associated with this syndrome