



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF SEPT-DECEMBER 2024 TRIMESTER EXAMINATIONS**

UNIT CODE: PHT 214 UNIT NAME: MOVEMENT SCIENCE II

DATE: Wednesday/ 11th/ December
TIME: TWO HOURS
START: 9am STOP : 11am

INSTRUCTIONS (physical exams)

1. Do not write on this question paper
(Marks and questions distribution as per program curriculum.)

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This exam shall take 2 Hours

SECTION A; MULTIPLE CHOICE QUESTION Answer All Questions (30 Marks)

1. Poor posture affects the following body systems except
 - a. Respiratory
 - b. Digestive
 - c. Nervous
 - d. none the above
2. What could a “drop foot” during swing phase in gait cycle indicate?
 - a. Very mild weakness of gastrocnemius
 - b. Paralysis of tibialis anterior
 - c. Contracture of tibialis anterior
 - d. Contracture of gastrocnemius
3. What could be the cause of premature elevation of the heel in mid stance?
 - a. Spasticity of tibialis anterior muscle
 - b. Limitation of ankle to dorsiflex
 - c. Mild weakness of m. Gastrocnemius
 - d. Limitation of ankle to plantarflexion
4. Which of the following does not match?
 - a. Stability- It is where the body's relative position is determined to be zero
 - b. Base of support-refers to the area beneath an object or person that includes every point of contact that the object or person makes with the supporting surface.
 - c. Equilibrium- as any condition in which all acting forces are cancelled by each other resulting in a stable balanced system
 - d. Center of gravity-is the point where the mass of the body is concentrated.
5. What could initial contact with the forefoot (instead of heel) indicate?
 - a. Contracture of plantar flexors
 - b. Severe weakness of dorsiflexes
 - c. Contracture of dorsiflexes
 - d. Both a) and b) are correct
6. The following are factors that affects body posture except?
 - a. Age
 - b. Obesity
 - c. Gender
 - d. Tight muscles
7. Patients with an ankylosis of the hip joint in a flexed position show the tendency
 - a. to bend the trunk forwards in beginning of stance phase
 - b. to bend the trunk forwards at the end of stance phase
 - c. to bend the trunk forwards at the end of swing phase
 - d. to bend the trunk forwards at the beginning of swing phase

8. What is the correct order of phases in the swing phase?
- Pre swing – Initial swing – Mid swing – Terminal swing
 - Initial swing – Mid swing – Terminal swing
 - Toe off – Feet adjacent – Next initial contact
 - Pre-swing – Initial swing– Terminal swing
9. Bed mobility includes the following movements except?
- Rolling
 - Scooting in supine
 - Sitting and scooting on the edge of the bed.
 - None of the above
10. What is the total duration of the stance phase?
- 40% of the gait cycle
 - 50% of the gait cycle
 - 60% of the gait cycle
 - 100% of the gait cycle
11. Long-leg sitting is the?
- Posture in which the legs are extended straight out in front of the person on a flat surface and the hips are flexed to at least 90°.
 - Posture in which the legs are extended straight out in front of the person on a flat surface and the knees are flexed to at least 90°.
 - Posture in which the legs are extended straight out in front of the person on a flat surface and the hips and knees are flexed to at least 90°.
 - is the posture in which a person sits with the hips flexed at least to 90° and knees are flexed over the edge of the surface
12. What clearly defines stance phase?
- Begins when the heel rises and ends when the contralateral lower extremity touches the ground
 - It begins at the instant that one extremity contacts the ground and continues as long as some portion of the foot is in contact with the ground
 - The phase from opposite toe-off to heel rise
 - Takes place from foot contact of the contralateral limb to toe off of the ipsilateral foot
13. The following are the effects of good posture in relation to body functions and systems except?
- Decreases the subject's state; mentally or psychologically
 - Decreases the incidence of diseases resulting from bad posture
 - Helps the muscles in the body to be unloaded and relaxed.
 - Prevents unnecessary strain and fatigue.

14. Which pathological condition could arise from paralysis of the hamstrings?
- Genu recurvate gait
 - Trendelenburg gait
 - Hemiplegic gait
 - Quadriceps gait
15. Which is the most correct position for your head, shoulders and arms when seated in front of a computer
- Head forward, shoulders forward, arms reaching forward, shoulders relaxed, elbows close to the body at 90 degrees
 - Head and neck straight but relaxed in line with torso, shoulders relaxed, elbows close to the body at 90 degrees
 - Head forward, shoulders back, arms reaching forward, elbows close to the body
 - All the above
16. Which of the following statement is not true?
- Poor posture is a faulty relationship of the various parts of the body, which produces increased strain on the supporting structures and in which there is less efficient balance of the body over its base of support.
 - Posture stability refers to the ability to maintain a balanced and aligned position of the body while in motion.
 - Though good posture stability helps to maintain proper body alignment and joint integrity, it limits optimal muscle activation and control.
 - None of the above
17. Which statement is true in relation to ergonomics?
- Ergonomics at work consists of designing the products and the tasks so that these adapt to the workers and not the other way around.
 - Ergonomics is related to comfort and safety
 - Musculoskeletal disorders are basically a variety of conditions that affect the muscles, bones, and joints.
 - All the above
18. The following are the key paramount prior to the physical therapist initiates a patient transfer except?
- Diagnosis
 - Age
 - Ability to follow instructions
 - Medical precautions or contraindications

19. The basic definition of ergonomics is?
- Using relaxed posture
 - Fitting the employee to the workstation
 - Fitting the workstation to the employee
 - Either A or C
20. Which statement is false?
- When lifting, it is important to keep your feet close together so you can maintain your balance
 - You should always transfer to the patient's stronger side.
 - When lifting, it is important to hold the object as close to your body as possible
 - To transfer from the bed to the wheelchair, the resident should reach for the armrest of the wheelchair before standing up.
21. Which of the following is not true on how to use gait belt while addressing mobility issues?
- A gait belt should be used with patients needing assistance or supervision with transfers and ambulation.
 - It should be tightened until snug, but maintain comfort
 - Don't hold onto belt at all times when assisting the person to transfer or when walking
 - Place your hand under the belt, palm side up using a firm grasp.
22. Which statement is not true in muscle imbalances while describing abnormal postures?
- Kypholordotic Posture- The neck flexors, thoracic paraspinals, external obliques, and middle/lower trapezius are long and weak. The neck extensors, hip flexors, and lower back muscles are short and strong.
 - Lordotic Posture- The abdominal muscles are long and weak. The lower back muscles and hip flexors are long and weak.
 - Flat-Back Posture- The hip flexors are long and weak. The hip extensors are short and tight.
 - Sway-Back Posture- The neck flexors, middle/lower trapezius, thoracic paraspinals, external obliques, and Iliopsoas are long and weak. The hip extensors are short and strong
23. Which of the listed below musculoskeletal disorders is not a result of missing or limited ergonomics at work place?
- Muscle strains and lower back injuries
 - Elbow Epicondylitis
 - Shoulder Rotator cuff injuries
 - None of the above

24. The following are the importance of rolling as described in bed mobility activities except?
- Transferring to Sitting
 - Dressing
 - Changing Position in Bed
 - None of the above
25. An elderly and frail adult is referred to physical therapist for an examination of the balance. The patient has a recent history of falls (2 in the last 6 months). Based on the knowledge of balance changes in the elderly and scoring of standardized balance measures, the test data that BEST indicate increased fall risk is;
- Functional reach of 7 inches
 - Berg balance score of 50
 - Tinetti performance oriented mobility assessment(POMA) score of 27
 - Timed get up and go (GUG) test result of 13 seconds
26. During the swing phase, the physical therapist observes the patient having circumduction gait; this shows that,
- Weak hip flexors
 - Weak knee flexors
 - Weak hip and knee flexors
 - Weak Abdominal muscles
27. Which of the following statements does not describe balance?
- Refers to an individual's ability to maintain their line of gravity within their base of support
 - The resistance to a change in the body's acceleration, or the resistance to a disturbance of the body's equilibrium
 - Ability to maintain equilibrium
 - An even distribution of weight, enabling someone or something to remain upright and steady
28. Which of the following is not a type of ergonomics?
- Physical ergonomics
 - Repetitive ergonomics
 - Cognitive ergonomics
 - Organizational ergonomics
29. Which of the following balance systems provide proprioceptive information from spinocerebellar pathways to control postural balance?
- Somatosensory
 - Vestibular
 - Visual
 - Cerebellum

30. Which of the following is not an advantage of ergonomics?
- Higher productivity
 - Less expensive
 - Increased work quality
 - Reduce absenteeism

SECTION B; ANSWER ALL

SHORT STRUCTURED QUESTIONS (20 Marks)

31. Describe the prone lying position. (5 marks)
32. Describe the sequence to examine static sitting posture? (5 marks)
33. Discuss levels of transfers in physical therapy activities. (5 marks)
34. With examples distinguish between static and dynamic active posture forms of balance. (5 marks)

SECTION C: LONG STRUCTURED QUESTIONS; ANSWER ANY OF 2 OF THE FOLLOWING QUESTIONS (20 Marks)

35. Discuss the hip precautions and knee precautions during restorative transfers. (10 marks)
36. Describe the 5 levels of Weight Bearing. (10 marks)
37. Discuss the procedure and the outcome of the following balance outcome measures. (10 marks)
- The 4-Stage Balance Test
 - Timed Up and Go Test
38. Discuss the guidelines in management model that a physical therapist should observe in occupational health. (10 marks)