



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

FIRST TRIMESTER EXAMINATIONS

FOR THE DEGREE

OF

BACHELOR OF SCIENCE IN PHYSIOTHERAPY

COURSE CODE: BSP 317/HPT 216

COURSE TITLE: KINESIOLOGY

DATE: WEDNESDAY 6TH DECEMBER 2023

TIME: 8:00AM TO 10:00AM

INSTRUCTIONS TO CANDIDATES

Answer all Questions

Sec A: Multiple Choice Questions (MCQ) 20 Marks

Sec B: Short Answer Questions (SAQ) (40 marks)

Sec C: Long Answer Questions (LAQ) (40 marks)

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

SECTION A: MULTIPLE CHOICE QUESTIONS

(20 marks)

- 1) There are 10 structures within the carpal tunnel: the median nerve and nine tendons (four flexor digitorum superficialis [FDS], four flexor digitorum profundus [FDP], and the flexor pollicis longus [FPL]). Which tendon is the most radial and which tendons are the most dorsal?
 - A. Radial: FPL; dorsal: FDP
 - B. Radial: FPL; dorsal: FDS
 - C. Radial: FDS; dorsal: FDP
 - D. Radial: FDP; dorsal: FPL
- 2) The most common level of cervical disc herniation is between C5 and C6. Which nerve root would be compressed? Think about a physical examination finding for an affected patient.
 - A. C4
 - B. C5
 - C. C6
 - D. C7
- 3) Movements requiring maximum accuracy or involving loads are usually
 - A. Sequential in nature
 - B. Simultaneous in nature
 - C. Segmental in nature
 - D. Concurrent in nature
- 4) All of the following are factors in range of motion EXCEPT
 - A. Joint structure
 - B. Muscle bulk
 - C. Ligamentous structures
 - D. Segment length
- 5) Which of the following categories of motion is mutually exclusive with each of the others?
 - A. Translational motion
 - B. Rectilinear motion
 - C. Rotational motion
 - D. Curvilinear motion
- 6) A wheelbarrow is an example of which class of lever?
 - A. 1st class
 - B. 2nd class
 - C. 3rd class
 - D. 4th class
- 7) What does the center of gravity of an object represent?
 - A. The exact center anatomically
 - B. The geometric center
 - C. The center of the mass of body
 - D. The center of the base of support
- 8) The perpendicular distance between the line of force and the axis defines
 - A. Moment arm
 - B. Torque
 - C. Fulcrum
 - D. vector
- 9) Which of the following is the primary stabilizer of the longitudinal arch?
 - A. Plantar fascia
 - B. Intrinsic musculature
 - C. Bony architecture of the midfoot (Roman arch)
 - D. Interosseous ligaments
 - E. Dorsal ligament

- 19) A person is bringing an eating utensil to the mouth using elbow flexion. In which plane and around which axis does this elbow motion primarily occur?
- Transverse plane around a sagittal axis
 - Sagittal plane around a frontal axis
 - Frontal plane around a sagittal axis
 - Horizontal plane around a vertical axis
- 20) Which of the following examples BEST describes linear motion?
- Lower limb moving around knee joint axis during knee extension
 - Displacement of the center of mass during walking
 - Hand bringing food to the mouth during eating
 - Gliding motion between the surfaces of two joints

SECTION B: SHORT ANSWER QUESTIONS

(40 MARKS)

- Give examples of joints classified as Biaxial:
- Discuss the factors contributing to stability and instability of the GH joint
- Describe the planes of motion and axes of rotation for the joints of the elbow and the forearm complex
- Contrast and compare walking and running cycles
- Outline the factors that contribute to unsafe lifting techniques
- Describe the kinematic strategies used to produce different functional motions at the hip
- Describe the factors that contribute to excessive lateral tracking of the patella
- Identify motions of the TMJ

SECTION C: LONG ANSWER QUESTIONS

(40 Marks)

- Mr. Kalisa is a recovering stroke patient. He is in stage 3 of recovery; you note that his affected hand cannot grip
 - Outline the intrinsic muscles and extrinsic muscles of the hand (8 marks)
 - Relate and describe the expected possible grips associated with each muscle group on recover
- Collaborate the different gait deviations with their unique structural dysfunction

- 10) Which of the following is true of the existence of motion during a "stationary" stance?
- There is no motion.
 - There is slight motion forward and backward.
 - There is slight motion side to side.
 - There is slight motion in all directions.
- 11) Why is it easier for a runner to move the recovery leg forward more rapidly when it is flexed than when it is extended?
- The mass of the leg is greater when it is flexed.
 - The mass of the leg is less when it is flexed.
 - The moment of inertia of the leg is greater when it is flexed.
 - The moment of inertia of the leg is less when it is flexed.
- 12) A dynamometer measures
- Velocity
 - Acceleration
 - Force
 - Pressure
- 13) All of the following are examples of sagittal plane movements EXCEPT
- Lateral flexion
 - Flexion
 - Hyperextension
 - Plantar flexion
- 14) Dysfunction of the posterior tibial tendon compromises heel rise secondary to failure of which of the following?
- Eversion of the hindfoot that unlocks the transvers tarsal joints
 - Inversion of the hindfoot that unlocks the transversal tarsal joints
 - Eversion of the hindfoot that locks the transverse tarsal joints
 - Inversion of the hindfoot that locks the transverse tarsal joints
- 15) Compressive injury to the peroneal division of the sciatic nerve can occur during total hip arthroplasty. Which thigh muscle would be affected?
- Rectus femoris
 - Vastus lateralis
 - Biceps femoris, long head
 - Biceps femoris, short head
 - Sartorius
- 16) Which of the following is the factor most likely to contribute to joint reaction force?
- Specific limb gravity
 - Joint deformity
 - Muscle contraction about the joint
 - Joint contact area
 - Ligamentous tension about the joint
- 17) Which of the following is not included in the contents of the carpal tunnel?
- Flexor pollicis longus tendon
 - Flexor digitorum superficialis tendons
 - Flexor digitorum profundus tendons
 - Median nerve
 - Flexor carpi radialis tendon
- 18) Which of the following extensor mechanism structures links digital DIP and PIP extension?
- Sagittal band
 - Central slip
 - Oblique retinacular ligament
 - Transverse retinacular ligament
 - Lateral band