



(University of Choice)

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

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2021/2022 ACADEMIC YEAR**

**SECOND YEAR THIRD TRIMESTER EXAMINATIONS**

**FOR THE DEGREE**

**OF**

**BACHELOR OF SCIENCE IN PHYSIOTHERAPY**

**COURSE CODE: BSP 236**

**COURSE TITLE: KINESIOLOGY**

**DATE: Wednesday - 12<sup>th</sup> January 2022      TIME: 8:00 am to 11:00 am**

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**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: 3 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) What movement is permitted at the tarsometatarsal joint?
  - A. Rotation
  - B. Sliding
  - C. Spin
  - D. Extension
- 2) When a concave joint surface moves on a convex stationary joint surface, roll and slide occurs in which direction
  - A. Same direction
  - B. Opposite direction
  - C. All direction
  - D. Horizontal direction
- 3) Which of the following statements is true?
  - A. Complete range of motion for wrist extension is typically 0 to 25 degrees.
  - B. Complete range of motion for wrist flexion is typically 0 to 80 degrees.
  - C. Complete range of motion for wrist radial deviation is typically 0 to 60 degrees.
  - D. Complete range of motion for wrist extension is typically 0 to 15 degrees.
- 4) The strongest ligament of the hip joint is?
  - A. Pubofemoral
  - B. Ischiofemoral
  - C. Iliofemoral
  - D. Cardinal ligament
- 5) On unilateral stance the safety zone is limited in
  - A. Antero-posterior sway
  - B. Side to side sway
  - C. Rotatory sway
  - D. Diagonal sway
- 6) Which of the following best describes the scapulohumeral rhythm?
  - A. For every 3 degrees of scapular upward rotation, degree of glenohumeral adduction must occur.
  - B. For every 2 degrees of glenohumeral flexion or abduction, 1 degree of scapular upward rotation must occur.
  - C. The scapulohumeral rhythm occurs only during passive flexion and extension motions of the shoulder.
  - D. Protraction of the scapula must be accompanied by horizontal abduction of the humerus.
- 7) Which is not a saddle joint?
  - A. Carpometacarpal of thumb
  - B. Ankle
  - C. Sternoclavicular
  - D. Acromio-clavicular
- 8) Which of the following joints are most proximal within the hand?
  - A. MCP joints
  - B. PIP joints
  - C. DIP joints
  - D. CMC joints

- 9) Normal carrying angle is
- 0 – 20
  - 0 – 30
  - 0 – 10
  - 0 – 40
- 10) Minimal muscle force is required when the joints is on
- Closed pack position
  - Loose pack position
  - In between close and loose pack position
  - In extension
- 11) Which of the following muscles has its distal attachment (insertion) on the radius?
- Brachialis
  - Brachioradialis
  - Biceps brachii
  - A and B
  - B and C
- 12) Newton's 1st law of motion is applicable to which phase of gait cycle
- Stance phase
  - Swing phase
  - Mid stance
  - Push off
- 13) When two forces applied from one point as the angle between the forces decrease the resultant force.
- Decrease
  - Increase
  - Remains same
  - Becomes twice
- 14) Low back pain patient which muscle is an important contributor to the symptoms
- Erector spine
  - Iliopsoas
  - Obliques
  - Hip extensors
- 15) The primary motions that occur at the talocrural joint are:
- Dorsiflexion and plantar flexion
  - Inversion and eversion
  - Adduction and abduction
  - None of the above
- 16) Static stabilization of glenohumeral articular surface is provided by
- Coracohumeral ligament
  - Coraco clavicular ligament
  - Superior joint capsule
  - Coraco humeral ligament and superior joint capsule
- 17) Which of the following statements is (are) true regarding normal curvatures of the vertebral column?
- The cervical and lumbar regions are both normally lordotic.
  - The thoracic and lumbar regions are both normally kyphotic.
  - The cervical and sacral areas are both normally kyphotic.

- D. The lumbar region is the only region of the spine that is normally lordotic.
- 18) Which of the following structures is the distal attachment for all heads of the quadriceps?
- Tibial plateau
  - Tibial tuberosity
  - Pes anserinus
  - Lateral epicondyle of the femur
- 19) When the spine becomes flat there is increased pressure on which structures?
- Facets
  - Ligaments
  - Disc
  - Body
- 20) Which of the following muscles is a primary hip flexor?
- Iliopsoas
  - Semitendinosus
  - Piriformis
  - Gluteus maximus

**SECTION B: SHORT ANSWER QUESTIONS**

**(40 MARKS)**

**(5 marks)**

- How does the body absorb shock?
- Describe the planes of motion and axes of rotation for the joints of the elbow and forearm.
- Explain the function of the wrist extensor muscles when grasping.
- Differentiate between segmental and gross stabilization of the vertebral column.
- Describe the factors that contribute to safe and unsafe lifting techniques.
- Describe the supporting structures of the hip joint.
- Describe the planes of motion and axes of rotation for the motions of the knee.
- Explain the function of the medial longitudinal arch.

**SECTION C: LONG ANSWER QUESTIONS**

**(40 Marks)**

**(20 marks)**

- Mr Njoroge is admitted to the medical ward due to a chest infection which is localized to the anterior segments of the lower lobes. He presents with SPO<sub>2</sub> of 89. Regarding ventilation
  - Cite the primary muscles of inspiration that are affected.
  - Cite the primary muscles of expiration that are affected.
  - Describe the muscular interactions involved in forced inspiration exercises.
  - Describe the muscular interactions involved in forced expiration exercises.
- Refer to the muscular and joint interactions that occur
  - During early, mid, and terminal swing.
  - During heel off and toe off