CENTRE FOR DISTANCE AND ONLINE EDUCATION
SRI SRI UNIVERSITY, CUTTACK

MASTER OF ARTS (YOGA)

TUTOR MARKED ASSIGNMENT

Course Code: MSY-SCT-203 **Academic Year: 2025-26**

Course Name: Biomechanics and Kinesiology **Session: February 2025**

Semester: 2nd **Total Marks: 100**

A. Answer any eight questions (essay type). Answer in about 350-500 words each.
(10 X 8 = 80)

1. Explain the meaning and scope of kinesiology. Discuss how basic biomechanical terms such as velocity, acceleration, torque, gravity, friction, and pressure help in understanding movement ef ficiency and safety during yoga practice.

2. Describe the difference between *kinematics* and *kinetics* with suitable examples from yoga post ures. Evaluate how the type, direction, magnitude, and rate of movement influence joint loadin g and muscular engagement.

3. Discuss the importance of axes, planes, centre of gravity, equilibrium, and line of gravity in the performance of yoga asanas. Illustrate your answer with examples showing how minor changes in alignment affect balance, stability, and muscular effort.

4. Explain the fundamental movements occurring at various joints of the human body. Analyze ho w understanding these movements supports accurate asana execution, prevents injury, and enha nces structural awareness in yoga practitioners.

5. Discuss the physiological importance of the angle of pull, all-or-none law, reciprocal innervatio n, reciprocal inhibition, and stretch/postural reflexes. Explain their role in shaping neuromuscul ar responses during different categories of yoga postures.

6. Describe the meaning and types of force and the concept of levers in the human body. Examine how Newton's three laws of motion apply to common yogic movements such as Surya Namask ar, standing asanas, balancing postures, and transitions.

7. Explain the structure, function, and contraction mechanisms of skeletal muscle. Analyze positiv e and negative work of muscles, co-contraction, isometric actions against gravity, and factors c ontributing to jerky or inefficient movements in yoga.

8. Discuss the concepts of mechanical energy, muscle power, energy flow, and energy storage in t he body. Explain how energy is generated at one joint and absorbed at another and its relevance for smooth sequencing of asanas.

9. Describe the methods for locating muscles, calculating displacement, speed, velocity, and accel eration using models or charts. Evaluate how these measurements help in analyzing posture cor rectness and improving yogic performance.

10. Explain angular kinematics and its significance in yoga. Discuss the steps involved in converting angular movement into stick-figure diagrams from photographs, and evaluate how this process improves understanding of alignment and technique during yogic demonstrations.

B. Write short notes on any four. Answer in about 150-200 words each.

(5 X 4 = 20)

1. What are the key differences between linear and angular displacement in human movement, and how do these concepts appear in yoga asanas?

2. Briefly explain how centre of gravity and equilibrium contribute to maintaining balance in stand ing and inverted yoga postures.

3. What are co-contractions, and how do they help stabilize joints during challenging asanas?

4. Explain the role of energy systems (ATP-PC, glycolytic, oxidative) in supporting sustained yog a practice.

5. What is the significance of assessing angular kinematics while learning yoga movements, espec ially for beginners?

6. How does reciprocal inhibition improve the efficiency and safety of stretching practices in yog a?