KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

(5 Pages) **Reg. No:……**

Question Code No : 25002905 **Course Code: 24UMPE32**

UG Degree - End Semester Examinations, November 2025

Third Semester

B.Sc. PHYSICAL EDUCATION

Sports Biomechanics and Kinesiology

(For those who joined in July 2024 onwards)

Time: 3Hours **Maximum: 75 Marks**

PART - A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer:

1. Biomechanics mainly deals with _____

   (a) Muscles (b) Human movement

   (c) Nutrition (d) Psychology

2. Which one is a type of motion?

   (a) Vertical (b) Linear

   (c) Diagonal (d) Mental

3. Speed is measured as

(a) Distance ÷ Time (b) Force ÷ Mass

(c) Work ÷ Power (d) Mass ÷ Acceleration

4. Which is not an example of projectile motion?

(a) Long jump (b) Javelin throw

(c) Swimming (d) Shot put

5. The point where the body mass is concentrated is called:

(a) Base (b) Axis

(c) Centre of gravity (d) Balance

6. The ratio of effort arm to load arm is:

(a) Force (b) Speed

(c) Equilibrium (d) Mechanical advantage

7. Newton's third law states:

(a) F = ma (b) Action = Reaction

(c) Inertia of rest (d) Work = Force × Distance

8. The unit of power is

(a) Watt (b) Joule

(c) Newton (d) Meter

9. Which principle helps in high jump take-off?

(a) Balance (b) Force

(c) Equilibrium (d) Centre of gravity

10. Which principle mainly helps a player in performing a volleyball service?

(a) Lever principle (b) Newton's first law

(c) Centre of gravity (d) Friction

PART - B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

11. (a) Classify the aim of biomechanics in sports.

(OR)

(b) Classify and provide the difference between linear and angular motion with examples.

12. (a) Write short notes on distance, displacement and velocity.

(OR)

(b) List down the factors affecting projectile motion.

13. (a) Define equilibrium and explain its types with examples.

(OR)

(b) Write about the principles of lever with two sports examples.

14. (a) Explain the Newton's laws of motion in simple terms with examples from sports.

(OR)

(b) Explain the work, power and energy with suitable illustrations.

15. (a) Describe the application of biomechanics in running.

(OR)

(b) Describe the application of biomechanics in jumping.

PART - C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 500 words.

16. (a) List down the need and importance of biomechanics in physical education.

(OR)

(b) Explain air and water resistance in sports with neat examples.

17. (a) Analyze the concept of acceleration with examples.

(OR)

(b) Analyze the angular kinematics and its importance in sports techniques.

18. (a) Assess the role of levers in human movement with sporting examples.

(OR)

(b) Assess how centre of gravity and equilibrium influence performance in gymnastics.

19. (a) Analyze different types of force and their effect on sports performance.

(OR)

(b) Analyze Newton's laws of motion in relation to advanced sports performance.

20. (a) Evaluate the application of biomechanics principles in track and field events.

(OR)

(b) Evaluate the use of biomechanics in football and basketball.