

MASTER OF PHYSICAL EDUCATION EXAMINATION, 2023

(1st Year, 2nd Semester)

SPORT BIOMECHANICS AND KINESIOLOGY

PAPER - MPCC- 202

Time : Three hours

Full Marks : 70

Group - A

Answer *any three* questions: 15×3=45

1. What is meant by exercise and sport biomechanics? Explain the role of biomechanics in sport. Explain the relationship of planes with different axes with example of movements. 4+6+5=15
2. What is mechanics? Define kinetics and kinematics. Explain the linear and angular kinematics and kinetics with examples. 2+4+9=15
3. Write the need and importance of kinesiology in physical education and movement science. Make a kinesiological analysis of your walking pattern. 6+9=15
4. What is motion? How you can relate it with force. Explain different body levers. What are the characteristics of Projectile? Find out the angle of throw for maximum distance in projectile motion. 2+3+4+3+3
5. Briefly explain the techniques and procedure of biomechanical analysis? Biomechanically analyze any one fundamental human movement, except walking. 7+8=15

Group - B

Write notes on *any two* of the following : 7.5×2=15

6. Stability and equilibrium
7. Work, power and energy
8. Reciprocal innervation
9. Friction

Group - C

10. Answer *any ten* Questions (put a tick against your answer): 1×10=10
 - i) In the state of uniform motion
 - a) The velocity is constant
 - b) The acceleration is non-zero
 - c) Cover unequal distances in equal intervals of time
 - d) None of the above

[Turn over

- ii) Coronal plane divides the body into
- a) Front and back halves
 - b) Left and right halves
 - c) Upper and lower halves
 - d) Inner and outer halves
- iii) The motion of a Javelin is an example of
- a) Projectile motion
 - b) Regularly accelerated motion
 - c) Decelerated motion
 - d) Irregularly decelerated motion
- iv) Mass is the direct measure of
- a) Velocity
 - b) Speed
 - c) Inertia
 - d) Both speed and velocity
- v) The energy has
- a) Magnitude
 - b) Direction
 - c) Both
 - d) None
- vi) Which movement involves flexion, extension, abduction, and adduction?
- a) Lateral movements
 - b) Circumduction
 - c) Sliding
 - d) Medial movement
- vii) The rate of change of momentum is equal to
- a) Work done
 - b) Applied force
 - c) Impulse
 - d) Pressure
- viii) When an object is falling freely only under the influence of gravity the kinetic energy is
- a) Decreased
 - b) Increased
 - c) Increased for a few moments then decreased
 - d) None of the above
- ix) Arrange the following phases of action of long jump according to their sequence of execution from the code given below
- I. Landing
 - II. Take-off
 - III. Flight
 - IV. Approach run
- Codes:
- a) IV, II, III, I
 - b) II, III, I, IV
 - c) III, I, IV, II
 - d) I, IV, II, III

- x) The relationship between the momentum and velocity of the object is
- a) Directly proportional
 - b) Inversely related
 - c) Not related
 - d) None
- xi) When a projectile is released from a lower position than the surface where it lands the angle of release should be:
- a) 45°
 - b) Less than 45°
 - c) Greater than 45°
 - d) Varied depending on the mass of the object
- xii) If a body at rest was accelerated at a rate of 2m/s^2 and it traveled for 5 minutes, then what will be the final velocity of that object?
- a) 60 m/s
 - b) 6.0 m/s
 - c) 600 m/s
 - d) 0.6 m/s