

Name of the Course : Master of Physical Education (M.P.Ed.)  
Name of the Paper : Subject Specialization: Sports Biomechanics  
Paper Code : MPE-1004 (ii)  
Semester : IV (May/June 2026)  
Duration : 3 Hours  
Maximum Marks : 50 Marks

Roll No.....

**Instructions for Candidates**

1. Attempt any five questions
  2. All questions carry equal marks
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1. Define mechanical energy, work and efficiency. Discuss their applications in sports performance and explain the concept of mechanical efficiency.
  2. Explain cinematography and computerized video analysis in biomechanics. Discuss 2D and 3D analysis techniques with their advantages and limitations.
  3. Explain force platforms and pressure platforms. Discuss their design, calibration and applications in sports biomechanics.
  4. Explain electromyography (EMG). Discuss its units, terminology and importance in neuromuscular measurement.
  5. Explain gait analysis and its applications in sports biomechanics.
  6. Explain impulse and momentum (linear and angular). Discuss their role in analyzing airborne sports activities.
  7. Explain different direct measurement techniques. Discuss their role in neuromuscular and movement analysis.
  8. Discuss modern trends in biomechanical instrumentation. Explain ethical considerations and informed consent in research involving human subjects.