NAME OF THE PAPER : **Scientific Basis of Sports Training & Talent Identification (MPE-0702)**

NAME OF THE COURSE : **M.P.Ed.**

SEMESTER : **I-December 2025**

DURATION : **3 Hours**

MAXIMUM MARKS : **50**

NOTE: Attempt any five questions in total. All questions carry equal marks.

Q.1 Discuss the scientific foundation of sports training in terms of physiology, biomechanics, and psychology. How do these domains interact to enhance athletic performance? (10)

Q. 2 Explain the principles of sports training and critically analyze how violation of these principles can lead to performance stagnation or overtraining. (10)

Q.3 Define training load and explain the biological process of adaptation. Also, if design details of a workout is: 10 × 30 s high-intensity repeats with a work: rest ratio of 1:3. Then calculate:
a) total high-intensity (work) time in minutes
b) total rest time in minutes
c) total on-court time (work + rest) in minutes (exclude warm-up/cool-down) (5+5)

Q. 4 Compare the training effects and physiological adaptations of interval training, continuous training, and circuit training methods. (10)

Q.5 Discuss the neuromuscular and metabolic factors influencing strength performance. Briefly explain suitable methods to develop maximum and explosive strength. If Athlete A with having body weight of 150 lb. lifts 225 lb., while Athlete B having body weight of 200 lb. lifts 300 lb., who has higher Relative Muscular Strength? (4+4+2=10)

Q.6 Describe the determinants of speed and explain how speed of movement differs from acceleration speed. Support your answer with sport-specific examples. (10)

Q.7 Differentiate between technique, skill, and tactics. Evaluate how technical training contributes to tactical efficiency under competitive conditions. (10)

Q.8 Critically discuss the concept of periodization and explain how macro, meso, and micro cycles are structured to ensure top performance during major competitions. Also, if an athlete reduces total weekly training load from 900 units to 675 units during tapering before competition. Calculate the percentage reduction. (8+2=10)