

## Worksheet: System of Particles and Rotational Motion

West Bengal State Board · Class 11 · Physics · 5 questions · 16 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 16

**Q1.** Masses 2 kg and 3 kg are at (1,0) and (4,0) m. Find the centre of mass. [2 marks]

**Q2.** A disc has  $I = \frac{1}{2}MR^2$  about its central perpendicular axis. Find  $I$  about a parallel axis at the rim. [3 marks]

**Q3.** A torque of 10 N m acts on a body with  $I = 5 \text{ kg m}^2$  for 4 s from rest. Find the angular velocity attained. [3 marks]

**Q4.** A diver with  $I = 15 \text{ kg m}^2$  spins at 3 rad/s tucked, then straightens to  $I = 25 \text{ kg m}^2$ . Find the new angular velocity. [3 marks]

**Q5.** A solid sphere rolls down a 10 m high incline. Find its speed at the bottom ( $g = 10 \text{ m/s}^2$ ). [5 marks]