

INTERNATIONAL INDIAN SCHOOL BURAIDAH

CLASS: XI PHYSICS WORKSHEET

UNIT-6-System Of Particles and Rotational Motion

1. A body is under the action of two equal and oppositely directed forces and the body is rotating with constant acceleration. Which of the following cannot be the separation between the lines of action of the forces?

- (a) zero
- (b) 0.25m
- (c) 0.4m
- (d) 1.0m

2. A body of M.I. 3 kg m^2 rotating with an angular velocity 2 rad/s has the same K.E. as a mass of 12 kg moving with a velocity of

- (a) 1 m/s
- (b) 2 m/s
- (c) 4 m/s
- (d) 8 m/s

3. A string of length l fixed at one end carries a mass M at the other end. The string makes 2π revolutions per second around a vertical axis through the fixed end. The tension in the string is

- (a) MI
- (b) $2MI$
- (d) $4MI$
- (d) $16MI$

4. The pendulum consists of a sphere of mass m suspended with a flexible wire of length l . If the breaking strength of the wire is $2mg$, then the angular displacement that can be given to the pendulum is

- (a) 30°
- (b) 45°
- (c) 60°
- (d) 90°

5. A uniform thin rod of length L and mass M is placed on a rough horizontal surface. A small mass m is attached to one end of the rod. The system is set into oscillation about the center of mass of the rod. The time period of oscillation is:

- a) $2\pi\sqrt{2L/3g}$
- b) $2\pi\sqrt{L/g}$
- c) $2\pi\sqrt{3L/4g}$
- d) $2\pi\sqrt{4L/3g}$

6. A thin uniform, circular ring is rolling down an inclined plane of inclination 30° without slipping. Its linear acceleration along the inclined plane will be

- (a) $g/2$
- (b) $g/3$
- (c) $g/4$
- (d) $2g/3$

7. A solid cylinder of mass 20 kg, has length 1 metre and radius 0.5m. then its moment of inertia in kg m^2 about its geometrical axis is

- (a) 2.5
- (b) 5
- (c) 1.5
- (d) 3

8. Calculate the M.I. of a thin uniform ring about an axis tangent to the ring and in a plane of the ring, if its M.I. about an axis passing through the centre and perpendicular to plane is 4 kg m^2 .

- (a) 12 kg m^2
- (b) 3 kg m^2
- (c) 6 kg m^2
- (d) 9 kg m^2

9. Which is the wrong relation from the following?

- (a) $t = I a$
- (b) $F = ma$
- (c) $L = I \omega$
- (d) $I = t a$

10. If a body is rotating about an axis, passing through its centre of mass then its angular momentum is directed along its

- (a) Radius
- (b) Tangent
- (c) Circumference
- (d) Axis of rotation