1. The torque produced by a force depends on:
   A. Mass of the body only
   B. Force and perpendicular distance from axis
   C. Velocity of the body
   D. Angular momentum (B)

Explanation : Torque is given by $\tau = rF\sin\theta$, i.e., force × perpendicular distance from the axis. Mass or velocity don't directly determine torque.

2. The SI unit of angular momentum is:
   A. Joule-second B. Newton-metre
   C. Watt D. Newton (A)

Explanation : Angular momentum has dimensions $[M L^2 T^{-1}]$, which corresponds to Joule-second.

3. If the angle between force and position vector is 0°, torque will be:
   A. Zero B. Maximum
   C. Equal to force D. Infinite (D)

Explanation : $\tau = rF\sin\theta$. If $\theta = 0°$, $\sin 0° = 0$, hence torque = 0.

4. Which of the following conditions ensures rotational equilibrium of a rigid body?
   A. Net external force = 0
   B. Net external torque = 0
   C. Net velocity = 0
   D. Acceleration = 0 (B)

Explanation : For rotational equilibrium, the sum of all external torques acting on the body must be zero.

5. Angular momentum of a particle is defined as:
   A. mvr B. r × p
   C. p × v D. $mr^2\omega$ (B)

Explanation : By definition, L = r × p, where r is position vector and p is linear momentum.

6. When a body is in equilibrium on a see-saw, the condition is:
   A. F1 = F2 B. F1d1 = F2d2
   C. d1 = d2 D. F1 + F2 = 0 (B)

Explanation : Principle of moments states that anticlockwise moment = clockwise moment → F1d1 = F2d2.

7. The vector quantity analogous to force in translational motion is:
   A. Angular displacement B. Angular velocity
   C. Torque
   D. Angular momentum (C)

Explanation : Torque plays the same role in rotational motion as force does in linear motion.

8. Which of the following is NOT an example of a couple?
   A. Opening a bottle cap
   B. Turning a screwdriver
   C. A magnet in Earth's field
   D. A body moving in a straight line (D)

Explanation : A couple requires two equal and opposite forces, non-collinear. Straight line motion doesn't involve a couple.

9. The rate of change of angular momentum of a system is equal to:
   A. Moment of inertia B. Angular velocity
   C. External torque
   D. Linear momentum (C)

Explanation : Relation: $dL/dt = \tau_{external}$.

10. Centre of gravity of a body is that point:
   A. Where maximum mass is located
   B. Where whole weight appears concentrated
   C. That has zero velocity
   D. Always at geometric centre (B)

Explanation : By definition, centre of gravity is the point where the entire weight of a body can be assumed to act.