IMPORTANT QUESTIONS

Q.1 Derive an expression for the torque acting on a body.

2002 P.E. 2002 P.M., 2004 Failure

Q.2 Define moment of a couple and derive an expression for it.

2003 P.E, 2000.

Q.3 Define Equilibrium, and state the conditions of equilibrium.

2005, 2000, 1999, 1998, 1997, 1996, 1992, 2006, 2006 Failures, 2007 Failures, 2003 Failures, 2002 Supp., 2002 Failures.

Q.4 Define the following:

(i) Torque **2003 P.E, 2001, 1998, 1999. 2005 Supp., 2002 Failures.**
(ii) Centre of mass **2003 P.E 2005 Supp.**
(iii) Angular momentum **2003 P.E, 2001, 1999, 1998, 2005 Supp.**
(iv) Moment of couple **2001, 2007.**
(v) Static Equilibrium **2007.**
(vi) Dynamic Equilibrium **2007.**
(vii) Equilibrium **2005 Supp.**

Q.5 Differentiate between:
(i) Static Equilibrium and Dynamic Equilibrium.

2003 P.M.
(ii) Moment of force and moment of couple.

2003 P.M.

Q.6 State and explain law of conservation of angular momentum.

2002 P.E. 1999.

Q.7 What is Torque? Show that torque $\vec{\tau} = \vec{\gamma} \times \vec{F}$ and prove the torque

$$\vec{\tau} = \begin{vmatrix} i & j & k \\ x & y & z \\ Fx & Fy & Fz \end{vmatrix}$$

Where $\vec{\tau} = x\hat{i} + y\hat{j} + z\hat{k}$ and $\hat{F} = Fx\hat{i} + Fy\hat{j} + Fz\hat{k}$ **2005 Failures, 2004 Supp.**

Q.8 Show that the magnitude of the moment of a couple is given by $\tau = Fd$, wher the symbols have their usual meanings. **2008**

Q.9 Show that the torque acting on a body is independent of origin.