

IMPORTANT DETAILED QUESTIONS

- Q.1.** Explain displacement, velocity and acceleration, showing the difference between a uniform and non uniform velocity and acceleration of graphic method.
(1994)

[For Answer See Page# 3, 4, 5]

- Q.2.** Give the definition of force on the basis of Newton's First Law of motion. Starting with $F = ma$, Prove that force is also given by the rate of change of momentum
(2003 P.M)

[For Answer See Page# 6, 11]

- Q.3.** Two bodies of unequal masses are attached to the ends of a string which passes over a frictionless pulley. If they are hung vertically, derive the expressions for the tension in the string and the acceleration of the bodies when the mass-string system is in motion.(1993), (1996), (1998), (2003 P.E), (2003 P.M), (2005), (2007), (2007 Failures), (2005 Failures), (2005 Supp.), (2003 Failures), (2002 Supp.), (2009), (2011)

[For Answer See Page# 7, 8]

- Q.4.** Two masses m_1 and m_2 are attached with the ends of a string which passes over a frictionless pulley such that the mass m_2 is placed on a smooth horizontal plane surface and the mass m_1 moves vertically downward. Calculate the acceleration of the system.
(2001), (2004 Supp.)

[For Answer See Page# 9, 10]

- Q.5.** Define momentum and give its S.I. unit. State and prove the law of conservation of linear momentum.
(1992, 1997, 1999, 2002 P.E, 2003 P.M. 2005, 2007, 2005 Supp. 2002 Supp.)

[For Answer See Page# 11, 12]

- Q.6.** Define Elastic collision. Two spherical bodies of different masses moving with different velocities along same line collide elastically with one another. Find expression for the final velocity of only one of the two bodies after collision.
(2000, 2002 P.M, 2004, 2006, 2004 Supp., 2008, 2009, 2009F, 2012)

[For Answer See Page# 13, 14]

- Q.7.** Derive expression for acceleration of a body of mass m moving down, a plane of inclination θ having friction "f" (2000, 2002 P.E, 2002 P.M, 2003 P.E, 2003 Failures, 2004, 2006, 2008)

[For Answer See Page# 18, 19]