(10+1 PHYSICS)

Laws of Motion (Test -I)

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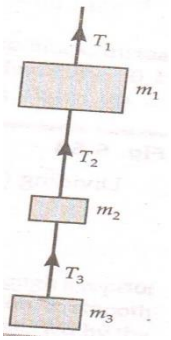
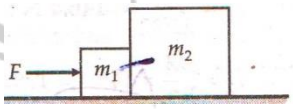
1) Second Law is the real law of motion. Explain? 3
2) Why a cricket player lowers his hands while catching a cricket ball? 2
3) State and prove Impulse- momentum theorem? 3
4) Derive a relation between Linear acceleration and angular acceleration? 2
5) A gun weighing 10 Kg fires a bullet of 30 gram with a velocity of 330ms^{-1}.With what velocity does the gun recoil? What is the resultant momentum of the bullet before and after firing? 2
6) The masses m1 , m2 and m3 of three bodies shown in figure are 5,2 and 3Kg respectively Calculate the values of tensions T1 , T2 and T3 when i) the whole system is going upward with acceleration of 2ms^{-2} and the whole system is stationary



7) Two blocks of mass m1 and m2 in contact on a horizontal smooth surface. The block are pushed 2 by a force F. If the two block are always in contact what the force at their common interface is



8) A block of mass 5 kg lies on a horizontal frictionless plane. A string attached to it passes over a smooth Pulley fixed to the edge of the plane and carries a load of mass 1 kg. Find the acceleration of the system.
9) A ball of mass 0.1Kg is thrown against a wall. It strikes the wall normally with a velocity of 30ms^{-1} and rebounds with a velocity of 20ms^{-1}.Calculate the impulse of the force exerted by the wall on the ball. 3
10) A gun weighing 10 Kg fires a bullet of 30 gram with a velocity of 330ms^{-1}.With what velocity does the gun recoil? What is the resultant momentum of the bullet before and after firing? 2