PWT-4

PHYSICS

1. (2) $F = \frac{dp}{dt}$
2. (1) Impulse = change in momentum $= m\vec{v}_2 - m\vec{v}_1$
3. (2) If a large force F acts for a short time dt the impulse imparted I is

   $I = F.dt = \frac{dp}{dt} \cdot dt$; $I = dp =$ change in momentum
4. (1)
5. (3) Swimming is a result of pushing water in the opposite direction of the motion.
6. (3) Hot gases with high velocity react against the rocket and push it up.
7. (1) If m_1, m_2 are masses and u_1, u_2 are velocities then by conservation of momentum

   $m_1u_1 + m_2u_2 = 0$ or $|m_1u_1| = |m_2u_2|$
8. (3) Impulse experienced by the body
   = change in momentum = MV – (–MV) = 2MV.
9. (4) When a rain drop falls down with the constant speed, its weight is balanced by the upward viscous drag of air and the force of buoyancy. Thus the net force acting on it is zero.
10. (3) $F = g \Rightarrow ma = g \Rightarrow m = g/a$ Weight (w) = mg = g/a x g= g^2 / a