A body of mass ‘m’ dropped from a height ‘h’ reaches the ground with a speed of $0.8\sqrt{gh}$. The value of work done by the air-friction is:

(A) -0.68 mgh (B) 0.64 mgh
(C) mgh (D) 1.64 mgh

Solution

$W_{all} = \Delta K$

Or $W_{mg} + W_{fr} = \Delta K$

$\therefore mgh + W_{fr} = \frac{1}{2} m(0.8\sqrt{gh})^2 - 0$

$\therefore W_{fr} = \frac{1}{2} mgh(0.64) - mgh = 0.32mgh - mgh = -0.68mgh$

Hence, (A).