56. Two bar magnets A and B, and a non-magnetic bar C, all of same mass and dimensions, are dropped in an identical manner one by one through the center of a copper loop held horizontally (as shown in the figure). The times taken by the bars A, B, and C to reach the ground are t_A, t_B, and t_C, respectively. Which of the following relations is correct?

A $t_A > t_B > t_C$

B $t_A = t_B > t_C$

C $t_A = t_B < t_C$

D $t_A < t_B < t_C$

induced current!

(1) As all 3 bars have same mass, gravity acts equally on them.

(2) The opposition will be experienced only by the magnets.

$\therefore t_C$ will be smallest !!

(3) Irrespective of whether N-pole faces the loop / S-pole, the opposition will be equal in magnitude

$\therefore t_A = t_B$.