1   A small mass executes simple harmonic motion about a point O with amplitude a and period T. Its displacement from O at time $T/8$ after passing through O is
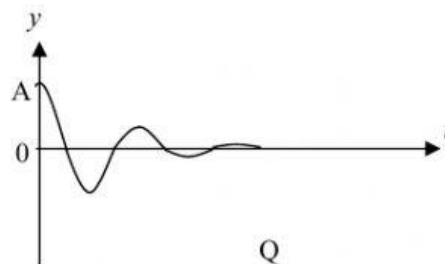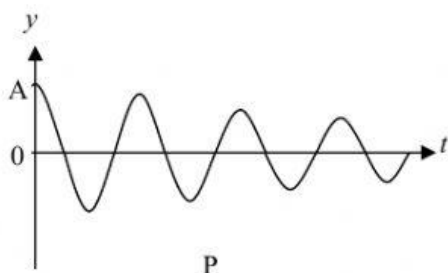
A $\dfrac{a}{\sqrt{2}}$ B $\dfrac{a}{2\sqrt{2}}$ C $\dfrac{a}{2}$ D $\dfrac{a}{8}$

2   Two bodies P and Q are given an initial displacement A and then released. The graphs below show how each of their displacement y vary with time t.

P and Q are then subjected to a driving force of constant amplitude and of variable frequency f. Which graph below best represents the way in which the amplitudes of P and Q vary with f?