

If velocity $[V]$, time $[T]$ and force $[F]$ are chosen as the base quantities, the dimensions of the mass will be :

[Aug. 31, 2021 (II)]

(a) $[FT^{-1}V^{-1}]$

(b) $[FTV^{-1}]$

(c) $[FT^2V]$

(d) $[FVT^{-1}]$

$$(b) \quad [M] = k[F]^a [T]^b [V]^c$$

$$[M^1] = [M^1 L^1 T^{-2}]^a [T^1]^b [L^1 T^{-1}]^c$$

$$= M^a L^{a+c} T^{-2+b-c}$$

$$a = 1, b = 1, c = -1$$

$$\therefore [M] = [FTV^{-1}]$$

Clearly, μ_0 is not a dimensionless quality.