10. Height h = 75 cm, Density of mercury = 13600 kg/m^3, g = 9.8 ms^{-2} then
    Pressure = hfg = 10×10^4 N/m^2 (approximately)
    In C.G.S. Units, P = 10×10^5 dyne/cm^2
11. In S.I. unit 100 watt = 100 Joule/sec
    In C.G.S. Unit = 10^9 erg/sec
12. 1 micro century = $10^4 \times 100$ years = $10^{-4} \times 365 \times 24 \times 60$ min
    So, 100 min = 10^5 / 52560 = 1.9 microcentury
13. Surface tension of water = 72 dyne/cm
    In S.I. Unit, 72 dyne/cm = 0.072 N/m
14. K = $kI^a \omega^b$ where k = Kinetic energy of rotating body and k = dimensionless constant
    Dimensions of left side are,
    K = $[ML^2T^{-2}]$
    Dimensions of right side are,
    $I^a = [ML^2]^a$, $\omega^b = [T^{-1}]^b$
    According to principle of homogeneity of dimension,
    $[ML^2T^{-2}] = [ML^2T^{-2}]\,[T^{-1}]^b$
    Equating the dimension of both sides,
    2 = 2a and –2 = –b ⇒ a = 1 and b = 2
15. Let energy $E \propto M^aC^b$ where M = Mass, C = speed of light
    ⇒ $E = KM^aC^b$ (K = proportionality constant)
    Dimension of left side
    E = $[ML^2T^{-2}]$
    Dimension of right side
    $M^a = [M]^a$, $[C]^b = [LT^{-1}]^b$
    $\therefore [ML^2T^{-2}] = [M]^a[LT^{-1}]^b$
    ⇒ a = 1; b = 2
    So, the relation is $E = KMC^2$
16. Dimensional formulae of R = $[ML^2T^{-3}I^{-2}]$
    Dimensional formulae of V = $[ML^2T^3I^{-1}]$
    Dimensional formulae of I = [I]
    $\therefore [ML^2T^3I^{-1}] = [ML^2T^{-3}I^{-2}]\,[I]$
    ⇒ V = IR
17. Frequency $f = KL^aF^bM^c$ M = Mass/unit length, L = length, F = tension (force)
    Dimension of f = $[T^{-1}]$
    Dimension of right side,
    $L^a = [L^a]$, $F^b = [MLT^{-2}]^b$, $M^c = [ML^{-1}]^c$
    $\therefore [T^{-1}] = K[L]^a\,[MLT^{-2}]^b\,[ML^{-1}]^c$
    $M^0L^0T^{-1} = KM^{b+c}\,L^{a+b-c}\,T^{-2b}$
    Equating the dimensions of both sides,
    $\therefore$ b + c = 0 …(1)
    –c + a + b = 0 …(2)
    –2b = –1 …(3)
    Solving the equations we get,
    a = –1, b = 1/2 and c = –1/2
    $\therefore$ So, frequency $f = KL^{-1}F^{1/2}M^{-1/2} = \frac{K}{L}F^{1/2}M^{-1/2} = \frac{K}{L} = \sqrt{\frac{F}{M}}$