10. Height \( h = 75 \text{ cm} \), Density of mercury = 13600 kg/m\(^3\), \( g = 9.8 \text{ ms}^{-2} \) then
Pressure = \( hfg = 10 \times 10^4 \text{ N/m}^2 \) (approximately)
In C.G.S. Units, \( P = 10 \times 10^5 \text{ dyne/cm}^2 \)

11. In S.I. unit 100 watt = 100 Joule/sec
In C.G.S. Unit = 10^5 erg/sec

12. 1 micro century = \( 10^6 \times 100 \text{ years} = 10^{-4} \times 365 \times 24 \times 60 \text{ min} \)
So, 100 min = \( 10^5 / 52560 = 1.9 \text{ microcentury} \)

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 \( k = \text{Kinetic energy of rotating body and} \ k = \text{dimensionless constant} \)
Dimensions of left side are,
\( K = [ML^2T^{-2}] \)
Dimensions of right side are,
\( I^a = [ML^2], \omega^b = [T^{-1}]^b \)
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 \( -2 = -b \) \( \Rightarrow a = 1 \) and \( b = 2 \)

15. Let energy \( E \propto M^a C^b \) where \( M = \text{Mass,} \ C = \text{speed of light} \)
\( \Rightarrow E = KM^aC^b \) (K = proportionality constant)
Dimension of left side
\( E = [ML^2T^{-2}] \)
Dimension of right side
\( M^a = [M]^a, \ C^b = [LT^{-1}]^b \)
\( \therefore [ML^2T^{-2}] = [ML^2T^{-2}][LT^{-1}]^b \)
\( 2a = 2 \) and \( -2 = -b \) \( \Rightarrow a = 1 \) and \( b = 2 \)

16. Dimensional formulae of \( R = [ML^2T^{-3}I^{-2}] \)
Dimensional formulae of \( V = [ML^2T^3I^{-1}] \)
Dimensional formulae of \( I = [I] \)
\( \therefore [ML^2T^3I^{-1}] = [ML^2T^{-3}I^{-2}][I] \)
\( \Rightarrow V = IR \)

17. Frequency \( f = KL^aF^bM^c \) \( M = \text{Mass/unit length,} \ L = \text{length,} \ F = \text{tension (force)} \)
Dimension of \( f = [T^{-1}] \)
Dimension of right side,
\( L^a = [L^a], \ F^b = [MLT^{-2}]^b, \ M^c = [ML^{-1}]^c \)
\( \therefore [T^{-1}] = KL^a [MLT^{-2}]^b [ML^{-1}]^c \)
\( M^aL^bT^{-1} = KM^bL^cT^{-2b} \)
Equating the dimensions of both sides,
\( \therefore b + c = 0 \) \( \ldots (1) \)
\( -c + a + b = 0 \) \( \ldots (2) \)
\( -2b = -1 \) \( \ldots (3) \)
Solving the equations we get,
\( a = -1, \ b = 1/2 \) and \( c = -1/2 \)
\( \therefore \text{So, frequency} \ f = KL^{-1}F^{1/2}M^{-1/2} = \frac{K}{L} \frac{F^{1/2}}{M^{1/2}} = \frac{K}{L} \sqrt{rac{F}{M}} \)