WORKSHEET -1

1) Convert the units

a) 30 km/h = _____ m /s = _____ cm/min

b) 250 mm/g = _____km/kg

c) 1 shake = 10^{-8}s $\Rightarrow$ 1 day = _____shake

d) 0,02 g/cm^3 = _____kg/m^3

2) A, B, C are physical quantities. [A] = velocity; [B] =angular acceleration; [C]= momentum Find the SI units and dimensions of the given **derived quantities** (S, U, Z).

Quantity	**SI Unit and dimension**
S = AB/C	[S]=?
U = A^2/CB^2	[U]=?
Z = AB^3C	[Z]=?

Answer these questions approximately and estimatedly.

3) A) How many apples can be filled in the lab ?

b) How many micrometers does your hair grow per minute?

c) How old are you in seconds?

d) Think yourself as a cylinder. What is your density, approximately.

Q6. In each formula, determine what units of measurement the specified quantity must have by writing out the units for each quantity you already know and solving and/or simplifying for the missing units. Note that every force, no matter what causes it, can be measured in newtons; every energy, no matter what type, can be measured in joules; and so on.

1) $I=m\cdot r^2$, I (moment of inertia) is measured in _____

2) $W=F\cdot\Delta x$, W (work) is measured in _____

3) $\Delta E_{therm}=m\cdot c\cdot\Delta T$, c (specific heat) is measured in _____

4) $F_{spr}=-kx$, k (spring constant) is measured in _____

5) $F_{grav}=-G\cdot\frac{m_1\cdot m_2}{r^2}$, G (universal gravitational constant) is measured in _____

6) $F_{elec}=k_e\cdot\frac{Q_1\cdot Q_2}{r^2}$, k_e (Coulomb's constant) is measured in _____

(note: this doesn't involve springs; k is just used frequently for constants)