

Ideas That Need Research and Development Work For Suitable Applications

Syed Mahboob^{1,*}, Rizwana²

¹ Osmania University, Hyderabad-500007, Telangana, India

² Institute of Aeronautical Engineering, Dundigal, Hyderabad-500043, Telangana, India.

*Author for correspondence (mahboob1978@yahoo.com)

Abstract: This paper contains many ideas that needs research and development work. These ideas are related to many branches of engineering and sciences. These ideas have possible many applications which are presented in this paper.

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1) Petrol is everywhere under the ground, the crude oil is heavier in mass than water. If one bores well around 10 Km from the ground surface the crude oil can be extracted. From the Ocean floor around 5 Km bore need to be bored to extract crude oil. Like water which is recycled by evaporation of water, formation of cloud and falling of rain, similarly the petrol, gas, crude oil are formed due to raining of cosmic rays which are non interacting particles from the sky and these rays which are non interaction particles pass through the earth surface and penetrate under the ground where due to high temperature and pressure the cosmic particles dissipate as mass (petrol, gas, crude oil, lava), and as temperature. This occurs recyclable in an unending process.

2) Thermoelectric material in thin film form with larger surface area should be used in thermal power plants simultaneously along side of producing steam to produce power output twice times or more.

3) Rotation of earth and axis tilt probable reason and needed focus
It is in news that the rotation time of earth is shortened or elongated. It is also in news that the rotation axis of earth has been tilted. This has resulted in melting of ice in north and south poles. The scientist is saying that this is due to change of magnetic field of sun. I think that the huge quantities of sand and sand stone are removed from desert and rivers and from mountains to built homes. This may have some imbalance on the earth rotation, which results in change of rotation time and tilting of earth rotation axis. The using of sand and sand stones should be stopped and fiber reinforced plastic should be used to make homes in order to further damage to rotation of earth and tilting of earth's axis. The fiber reinforced plastic is used in aeroplanes. This may be costly, but if mass produced the price can be lowered. One need to focus on it to reduce further damage to the earth regarding the rotation time and tilting of axis of earth.

4) Nuclear war should not be carried out. The earth has enormous amount of carbohydrates which in turn has enormous amount of carbon and hydrogen, if nuclear war is carried out and this has resulted in initiation of the carbon-carbon cycle and fusion of hydrogen then the earth would become another star. One should stop and do not use nuclear or hydrogen bombs. We should protect our earth.

5) Double four stroke engine operating in opposite directions when compared to single four stroke engine

A four-stroke (also four-cycle) engine is an internal combustion (IC) engine in which the piston completes four separate strokes while turning the crankshaft. A stroke refers to the full travel of the piston along the cylinder, in either direction. This can also be done from bottom of the chamber reversibly by additional four strokes completely acting opposite to first one which result in cumulative motion for both the forward and reversible motion of piston. The benefit of doing both the forward and reverse travel of piston so that both the process result in cumulative motion and it makes two tyre vehicles to run faster and can carry heavy load when compared to single four stroke. This saves time to reach the destination and also carry heavy load. This type of arrangement can be used in cars to carry heavy load and this needs a trial.

6) Generally the generator operated with the diesel is used to generate the electricity due to rotary motion of engine in generator. The generator does not emit gas to generate electricity with the use of diesel.

If one make heavy duty generator which can move the engine in rotary motion and do not exhaust gas and work on by consuming diesel. If this generator is connected by an appropriate arrangement of axel for the movement of back tyres then this can make to run car, lorry and bus dependent up on the heavy duty generator. The rotary motion of heavy duty generator can make rotary motion and also produce the electricity. The generated electricity can also be used to move the vehicle by an appropriate arrangement of additional engine. These types of vehicles which work on both diesel and electricity are called hybrid vehicles and these types of vehicles do not exhaust gases. These types of vehicles made by heavy duty engine may also be cost effective. This needs a trial.

7) Due to falling of cosmic dust due to falling of asteroids and meteorites in to earth atmosphere there results rich source of minerals, carbon and carbohydrates in cosmic dust. This should be collected in homes by sweeping and should used to prepare manure with rich source of minerals and carbohydrates which then can be used as manure the trees of fruits and vegetables and in agricultural field.

8) Possibility of making hydrides from the alloy present in lava and also used to make bronze pots by heating it which contains salty water; these hydrides which are in black colour in powder form when heated produces hydrogen which in turn can be utilized as clean fuel to run vehicles or to produce electricity.

9) Lasers due to excitation and de-excitation, this can be tried on elements with different valance states (example Ti with +3 &+4 states and Nb with +3 and +5 states. In the case of Ti and Nb the bulk single crystals can be prepared in oxide form by sintering at melting point of TiO_2 and Nb_2O_5 and crystallization. These single crystals in bulk form having valance electrons in valance band may be excited with light to go to conduction band and need to check these excited electrons de-excite to produce laser. One can also spin coat these oxides in to thin film and heat at the melting point of these oxides and this result in thin film single crystals. These single crystal thin films may be excited with light so as to transfer valance electrons from valance band to conduction band. If the electrons in the conduction band jump back to valance band then laser may be produced. This needs a trial. Study of thin film single crystal is the new field and this can be used for various applications. For example solar cell, electromechanical coupling, ferro-electricity (memory), piezoelectricity, ultrasonic transducer and actuators, magnetic (memory) etc. This can also be tried on compounds in cation and ion form having multiple valance states example NH_3 and NH_4 . This needs a trial.

10) In water purifiers the salty and dirty water is purified by reverse osmosis using the membrane; but due to non development of the pressure for water to flow through membrane due to small tank, it is reported that huge volume of water is drained out. This can be avoided by creating vacuum in the second chamber i.e. the other side of chamber to the membrane in which water is permeable. This can also be done by creating repelling of water right side of the membrane and attraction of water left side of the membrane according to the need by using magnetic field because water is diamagnetic. If the water is also electrically active then this can also be tried with electric filed. This creates necessary pressure or thrust and allows water to flow through membrane easily and this saves time, energy and water. One need to check all the process will generates more thrust for the permeability of the water. The above procedure is for the water purifier connected to water outlet. More pressure can also be generated if the water purifier is attached to water inlet for example bore well which pumps water in to the tank.

11) Ammonia (NH_3) and Ammonium hydroxide (NH_4OH) and PVA (polyvinyl alcohol) are harmful and Ammonia and ammonium hydroxide caused skin damage to humans and also it is harmful to water animals. PVA should not be drained in to ocean otherwise water animals will die as it is toxic. Similar to this Carbon tetrachloride (CCl_4) is harmful to ozone by reducing its thickness in other words this makes ozone layer thin and one need to identify the other chemicals which causes damage or thinning of ozone layer. These should be banned. Ozone protects us from the harmful solar rays for example ultraviolet rays. The chemicals like CCl_4 causes damage to ozone layer and this increase the global warming and not the CO_2 . The CO_2 is the food of trees and plants, CO_2 emitted by humans and vehicles or other process are used by trees to give us oxygen. Global warning is not due to CO_2 , but it reduces the temperature lower or cools it. For example soda water. CO_2 is lighter than air and the photons of sunlight pushes the CO_2 towards the ground so as to reach the trees and plants. The actual cause of global warning is not CO_2 emission but thinning of Ozone layer. The chemicals which make ozone layer thin should not be used or banned. If one wants to use CCl_4 for purpose like the refrigeration purpose precaution should be taken not to release the CCl_4 in the atmosphere by covering the pumping system of CCl_4 gas chamber in refrigeration with another chamber so as to not leak out in the atmosphere.

12) Update on possible way of purifying salty water in to pure water by sodium bicarbonate and hydrogen peroxide which needs a trial. This need to try on washing of clothes this way one can reduce the surface tension

of water by the initial constituents so that the dirt or strains are removed. Surface tension is nothing but viscosity. One need to check it is less or more and should try accordingly. In many places there is no drinking water, this way one can wash the clothes using salty water. If it works then it should be improved until difficult strains can be removed by opting the viscosity of water either it is less or more. In the below equation three gases are produced which helps to modulate the water tension i.e. viscosity. Important constituents are Sodium bi carbonate and hydrogen peroxide.



13) To enhance the capacitance of X7R material for both MLCC and thermoelectric materials and prepare any new material with giant capacitance or dielectric constant by adding the above materials with very very low content K, Na, Cu, Zn etc. during final sintering of these previously prepared ceramic materials and also by microwave sintering. This needs a trial. There is need to try the materials with higher dielectric constant with the above procedure to prepare materials with thermoelectrically property in thin film form with larger surface area. The example of X7R material is appropriately doping level of Mg^{+2} doped Barium titanate (BaTiO_3) and this can also be tried on CaTiO_3 , $\text{Na}_{0.5}\text{Bi}_{0.5}\text{TiO}_3$ and BaZrO_3 materials with above metal ions. The higher the dielectric constant may be the higher thermoelectricity. But should try in thin film form instead of bulk or thick tapes with the higher surface area and lesser is the film thickness. Larger the surface area may be higher is the thermoelectricity.

14) Generally the ceramic samples are prepared in bulk disc form. To make the pellet thin and for XRD and SEM the samples are rubbed or scratched on the sand paper to make the surface smooth. But making surface smooth after scratching on sand paper, this results in lowering of intensity of the XRD peaks and in SEM images one observe surface defects. To know real surface image in SEM and without loss of intensity in XRD it should be taken without scratching the surface after performing the final sintering or as sintered. These studies should be performed by cleaning the sample with ultra sonic cleaning using acetone. XRD using powder material also produces higher intensity than bulk form.

15) Generally the ceramic disc samples are prepared in bulk form. In order to check the material is showing the reverse thermoelectric property in easy way, the disk sample should be scratched on the sand paper and if gets heated up then this material has reverse thermoelectric property. If by scratching the ceramic disc materials gets cool then it has the electro caloric effect or refrigeration property. Research should be carried out to improve the above properties. The probable materials are BaTiO_3 , CaTiO_3 , $\text{Na}_{0.5}\text{Bi}_{0.5}\text{TiO}_3$, BaZrO_3 and solid solutions with binary or ternary solid solution of these above compounds.

16) If there is frequent voltage fluctuations and voltage trip caused in transformers then one need to change the primary and secondary coils wounded on magnet. Then the problem does not arise frequently and can be avoided and it works for long without any problem. Another problem of transformers is the blast of transformer due to increase of transformer oil conductivity due to rust formed in it. Hence from time to time the transformer oil need to be changed to avoid that and the rusted oil should be treated with acids and bases to precipitate the rust and use it again. Possibility of making a more efficient transformer by considering two cylinders of different diameter placed inside each other by wounding coils on it instead of rectangular (two sides of rectangle are wound by coil) or toroidal shaped (two half's are wound by coil) for the electricity to transform from once coil to other; in this type of transformers length of the cylindrical wound of coil will determine the voltage that can be regulated instead of electromotive force generated on the second coil by first coil in traditional transformers. This needs a trial.

17) For solar cell application, any of all materials like multivalent rare earth doping in barium titanate, calcium titanate, sodium bismuth titanate and their solid solution can be used. These materials should be prepared first and then trial should be done to sinter the sample close to melting point to grow single crystal. After sintering the materials which are transparent they show solar electricity property. The materials should also be formed in thin film form and should sinter close to melting point. Then thin single crystal film is formed. These films in single crystal form will show the solar electricity production. One should try this way. The silicon and other materials used for solar cell are costly and need sophisticated and costly equipment to prepare the film. But the films of multivalent rare earth doping in barium titanate, calcium titanate, sodium bismuth titanate and their solid solution can be prepared by spin coater technique. These films can be heated with furnace close to melting point to form single crystal thin film and these single crystal thin films would be cost effective probably many factors of times. Preparation of single crystal thin film form is new direction in the field of solar cells. One should carryout research and development work in this direction.

18) To improve the radio or micro wave communication, one should consider the modulation of wave length rather than frequency for longer distance communication. Higher is the frequency or lower is the wavelength it can covers shorter distance keeping velocity constant. Lower is frequency and higher is the wavelength one can cover the radio wave transmission for longer distance. Most materials show electromechanical coupling conversion. This is to convert the electrical energy to mechanical energy example

radio oscillation which can be transmitted and to receive the radio wave signal one should convert the mechanical electro conversion at the receiving end. This should be tried until the requirement is fulfilled. For example piezoelectric materials have both direct and indirect effect. Direct means from electrical to mechanical conversion at transmission side and indirect means from mechanical to electrical conversion at the receiving side. Any material with higher percentage of electromechanical conversion can be tried for example ferroelectric materials which in turn also show piezoelectric property. Whether it is reversibly possible or not need to check. If not other material which fulfill the purpose need to taken from the enormously large piezoelectric materials and try to develop the transmission and receiving radio or microwave communication. One should try with piezoelectric materials operating at lower frequency and higher wavelength to long distance communication. There is no need of installation of tower for transmission nearby if one uses the lower frequency and higher wavelength for transmission and communication. The Giga Hz frequency (of the order of GHz) communication in cellular phones requires many towers placed nearby. If the transmission frequency is lower for example in the milli Hz or Micro Hz range (the wavelength will be higher accordingly as velocity is constant) the transmission and communication range do not require towers placed nearby and the transmission can be performed over wide and longer distance with fewer transmission towers.

The relation between frequency and wavelength is given by $\text{frequency} = c / \text{wavelength}$. c is the velocity of light (3×10^8). The overall area of INDIA is approximately $3.3 \times 10^{12} \text{ m}^2$. If this is the wavelength (λ) of operation of telecommunication, then the frequency of operation of telecommunication would be $3 \times 10^8 / 3.3 \times 10^{12} = 9 \times 10^{-5}$. If operated at this frequency (9×10^{-5}) only one tower will be needed and there would be no occurrence of signal problem. Lower is the frequency higher is the wavelength i.e. higher is the coverage area of telecommunication and there is no need of installation of towers nearby.

The operation frequency of BSNL mobile phone is 26 GHz and the number of towers is around 68,000 numbers in INDIA.

$$\text{Frequency} = c / \lambda$$

$$26 \text{ GHz} = 3 \times 10^8 / \lambda$$

$$\lambda = 3 \times 10^8 / 26 \times 10^9 = 1.15 \text{ m}$$

The wavelength (λ) is much shorter and needs more towers for the coverage of whole INDIA. Therefore there is occurrence of signal problem frequently. One needs to install towers which are operated at lower frequency rather than higher frequency. Lower frequency higher is the wavelength and longer is the coverage area and there is no need of installation of many towers.

19) New solution which makes hole in cement floor by digesting it.

When I was a child, I was playing or doing some chemical reactions. In an electrical bulb, I have taken water; I added detergent, phenyl, toilet cleaning acid, dettol, sodium bi carbonate, washing soda and phosphorous oil, iodine liquid and heated it. After some time I wanted to throw it and found that it made a hole in the cemented floor. This is childish to do this but I think it's a magic solution that has formed. I didn't try it again. This will work if appropriate amount of constituents is taken to get the fruitful result.

20) Refrigeration and reverse refrigeration using ABO₃ materials.

Generally the piezoelectric materials like $\text{Ba}(\text{Nd}_x\text{Ti}_{1-2x}\text{Nb}_x)\text{O}_3$, $(\text{Na}_{0.5}\text{Bi}_{0.5})(\text{Nd}_x\text{Ti}_{1-2x}\text{NbO}_3)$ and their binary solid solution, also the ternary system with CaTiO_3 and also with BaZrO_3 individually. These materials shows electromechanical coupling at different temperatures and it is modelled with modified Lorentz equation with frequency and Temperature to know the activation energy for the electromechanical coupling conversion. These materials which shows electromechanical coupling at constant temperatures, these temperatures are nothing but the reverse refrigeration temperatures and can be used in AC in cooler countries to heat up the air in rooms on the application of electric field. The operating temperature condition is from RT to 200 degree centigrade. If one observes the electromechanical coupling at temperatures below zero degrees centigrade, then it means they get cooled with the application of electric field. One should try and verify it. One can also check these by modelling of the dielectric Vs frequency data at different temperatures using the modified Lorentz equation to know the activation energy needed to get cooler or heated up air.

21) From Polarization and Electric filed loop one obtain energy density and from the dielectric constant of material one can obtain current density not the energy density. If one is finding the energy density one should

use equation $W = \int_0^{E1} P \text{ d}E$. Using Integral $W = \int_{P1}^{P2} E \text{ d}P$ we get wrong values of energy density.

22) Lower is the operating frequency higher is capacitance or dielectric constant and higher is the frequency lower is capacitance and dielectric constant. For LTCC application frequency should be lower and

inductance should also be lower. The relationship between dielectric constant and frequency is given by below equations. The lower the film thickness the higher is the capacitance.

$$\epsilon' = \frac{\{I_0(\omega) \cdot d \cdot \sin[\pi/2 - \Phi(\omega)]\}}{\{V_0 \cdot A \cdot \omega \cdot \epsilon_0\}}$$

$$\epsilon'' = \frac{[\sigma_{ac} - \sigma_{dc}]}{\{\omega \cdot \epsilon_0\}}$$

$$\text{where } \sigma_{ac} = \frac{\{I_0(\omega) \cdot d \cdot \cos[\pi/2 - \Phi(\omega)]\}}{\{V_0 \cdot A\}}$$

23) Cow dung (gobar) consists of 24.37% of carbohydrates and 40% fiber and if one do the XRD of the dried cow dung one can know the carbohydrates and fiber formula present in cow dung. If this carbohydrates and fiber is made to reacts with appropriate acids and bases or other chemicals then one can obtain gober gas such as methane (CH₄), propane (C₂H₆) and butane (C₄H₁₀). Propane and Butane is the constituents of cooking gas (LPG). In villages huge amount of cow dung is produced by cows, buffalos, this cow dung can be used to prepared the propane and butane gas by appropriate initial chemical reaction with the carbohydrates by trial and error process. The farmers can establish gober gas plant and this makes the farmers to be self dependent and self sustainable on gober gas and can save money. The total amount of carbohydrate and fiber is around 65% of the cow dung and if the efficiency of gober gas produced is half of this then around 32.5 Kg of gas can be produced from 100 Kg of cow dung, this is approximately 3 full cooking gas cylinders.

24) The cow dung and agricultural waste is transformed in to manure by the earth worm by excreting chemical from their body not by eating it and excreting as faecal matter. One need to find out this chemical excreted by their body and need to prepare it synthetically then the manure can be prepared by using cow dung and agricultural waste is short time. This saves time and money of the farmers. The use of manure prepared by the above method would yield more agricultural products like rice, wheat, cereals, vegetable, fruits etc.

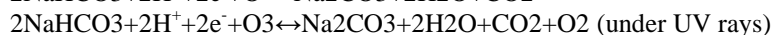
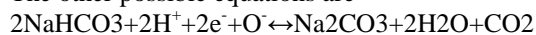
25) Procedure of disabling the missiles and nuclear bombs using concentrated infra red and UV rays beam to short circuit the resistors, capacitors, diodes and rectifiers.

In missiles and nuclear bombs there are number of capacitors, resistors, diodes and rectifiers on mother chip. If one want to disable these missiles and nuclear bombs before they explode one need to short circuit the resistors, capacitors, diodes and rectifiers using electromagnetic radiation in combination with RADAR (Radio detection and ranging). The electromagnetic radiation can also be shielded with thick cardboard. But the electromagnetic radiation like infra red and UV rays which heats up the materials can be used to short circuit the resistor, capacitor, diodes and rectifiers in missiles and nuclear bombs by heating them. The electromagnetic radiation like infra red and UV rays can be concentrated like laser beams and these beams can be used to heat up the resistors, capacitors, diodes and rectifiers in missiles and nuclear bombs so that they become short circuited there by disabling the missiles and nuclear bombs to travel and before they explode. The shielding with card board results in burning of card board. By doing this one can defend from the missile and nuclear bombs attack. This does not cause mass destruction to human beings and to infrastructure. If one wants to wage war with others then it does not work as the infra red and UV ray beam will disable the missiles and nuclear bombs which can be used in combination with RADAR. If one wage wars with each other would be in vain and do not result in mass destruction and can defend from those who wage war from the missiles and nuclear bombs and do not succeed in mass destruction to humans and to infrastructure. If this can be done then no one would be successful in war as everybody would defend themselves with concentrated UV beams. This needs trial.

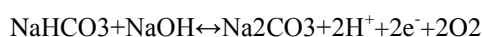
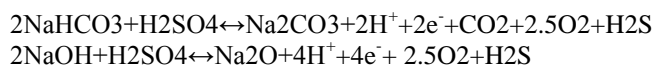
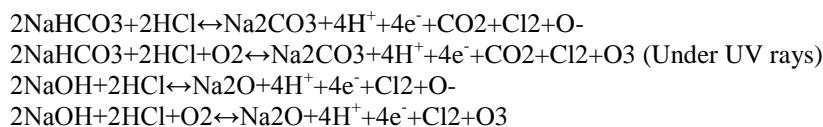
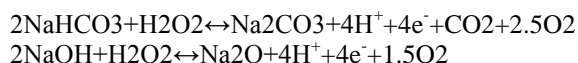
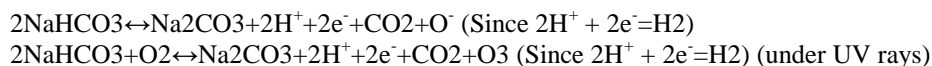
26) Generally decomposition of sodium bicarbonate (NaHCO₃) occurs at 80°C to 100°C and this decomposition reaction is very fast at 200°C. NaHCO₃ decomposes in to NaCO₃, H₂O and CO₂, the reaction is given below. The thermal activation energy required for decomposition of NaHCO₃ is around 32kJ/mol. If one applies thermal and electromagnetic energy of sun, one need to check whether decomposition of NaHCO₃ occurs or not. If decomposition occurs due to thermal and electromagnetic energy of sun then one need to check reverse reaction occurs or not. If reverse reaction occurs then one need to find electricity is produced or not. This needs a trial. If electricity is not produced then other possible ways to produce electricity needs a trial and error through research and development. For reverse reaction one need to consider catalyst, temperature and pressure. The temperature can also be applied by exposing the chemicals reaction chamber to the sun. Catalyst like Ni, Cu, Zn, Fe etc. Can be used. Pressure can be applied by pumping the CO₂ in to the reaction chamber by pumping motors.



The other possible equations are



Another possible reactions is as follows and one need to check both forward and backward reaction occurs or not in the presence of thermal and electromagnetic energy of Sun.



27) A researcher whose name I do not remember has shown a way and procedure in innovate India to produce methane gas which is combustible from the sewerage canals by establishing appropriate system or designed apparatus. One needs to check whether this can be done in pilot scale to produce huge amount of methane gas which in turn can be used to heat the water and produce steam and by running steam engine one can produce electricity or not.

28) A **neodymium magnet** (also known as **NdFeB**, **Neo magnet**) is the most widely used type of rare-earth magnet. It is a permanent magnet made from an alloy of neodymium, iron, and boron to form the $\text{Nd}_2\text{Fe}_{14}\text{B}$ tetragonal crystalline structure. There is a need to check whether Nd-Nd magnet can be prepared by heating and melting the Nd_2O_3 powder resulting in decomposition of Nd_2O_3 in to Nd and O_2 and also with the formation of Nd-Nd single crystal having magnetic property which can be used as permanent magnet.

29) I have observed toggle of sun like tiptop while travelling in train from Hyderabad to Delhi at sun set time (before one half to one hour of sun set). I was sitting by facing lift side of the window and sun set faces towards it. The train was running from left side to right side of my sitting position. I observed sun travelling from right side to left side and again sun comes from right side to left side and it happens many times. One needs to check whether this happens once again while travelling from Hyderabad to Delhi at near sun set time. If observed once again then its importance needs to be checked.

30) The distance between moon and earth is around 384,400 km. ISRO and NASA are sending rocket to moon in orbitually way and this takes six months of time to reach the rocket from earth to moon. This is done by increasing the diameter of the orbit by circulating around the earth and moon. Doing this way is wrong. The speed of rocket to moon (CHANDRAYAAN 2) developed by ISRO is 21,600 kmph. With this speed the rocket will reach the moon in approximately 2-3 days if sent directly and not by orbitually. The ISRO and NASA should think over it why rocket is sent orbitually rather than sending directly.

31) The owner of Microsoft Company Bill Gates is developing the software for the running of computer (example like windows 98, windows 2000, windows NT, windows XP, windows Vista, windows 7, 8, 9, 10, 11) every one year with slight modification. Updated software is not compatibility for the old computers and laptops and there is need of new computers with compatibility to new updated software. The software once developed should work for 10-15 years of time and there is no need of software up gradation every year. If up gradation is needed it should be done freely. The Microsoft company should stop doing this in the name of up gradation of software. If this is not stopped then one has to purchase the new software and if this is not compatibility to old computers and laptops then one has to purchase new laptops and computers. This is wrong to do so. The Microsoft companies software should be developed having good capability with any type of computers whether old or new.

32) The wings of butterfly have nano chemical powder coating which is hydrophobic which means it is water repellent. There is a need to find out which chemical it is on the butterfly wings and should produce it synthetically and should apply on solar panels for effective working of solar cells during rainy season.

33) The basic principle of quantum mechanics is given by equation as given below
$$E = p \cdot v \cdot (c^2 \cdot A^2) \cdot \lambda^2 = h \cdot c / \lambda$$

Table 1 showing calculated parameters like lambda, amplitude, energy in joules, energy in eV and frequency

h (X)	C (Y)	m (Y)	lambda (Y)	A2 (Y)	A (Y)	EJ (Y)	Ev (Y)	Freq (Y)
1	6.63E-34	2.998E8	1.673E-27	1E14	0.13219	0.363571.98767E-39	1.24071E-20	2.998E-6
2	6.63E-34	2.998E8	1.673E-27	1E13	0.01322	0.114971.98767E-38	1.24071E-19	2.998E-5
3	6.63E-34	2.998E8	1.673E-27	1E12	0.00132	0.036361.98767E-37	1.24071E-18	2.998E-4
4	6.63E-34	2.998E8	1.673E-27	1E11	1.32186E-4	0.01151.98767E-36	1.24071E-17	0.003
5	6.63E-34	2.998E8	1.673E-27	1E10	1.32186E-5	0.003641.98767E-35	1.24071E-16	0.02998
6	6.63E-34	2.998E8	1.673E-27	1E9	1.32186E-6	0.001151.98767E-34	1.24071E-15	0.2998
7	6.63E-34	2.998E8	1.673E-27	1E8	1.32186E-7	3.63574E-41.98767E-33	1.24071E-14	2.998
8	6.63E-34	2.998E8	1.673E-27	1E7	1.32186E-8	1.14972E-41.98767E-32	1.24071E-13	29.98
9	6.63E-34	2.998E8	1.673E-27	1000000	1.32186E-9	3.63574E-51.98767E-31	1.24071E-12	299.8
10	6.63E-34	2.998E8	1.673E-27	100000	1.32186E-10	1.14972E-51.98767E-30	1.24071E-11	2998
11	6.63E-34	2.998E8	1.673E-27	10000	1.32186E-11	3.63574E-61.98767E-29	1.24071E-10	29980
12	6.63E-34	2.998E8	1.673E-27	1000	1.32186E-12	1.14972E-61.98767E-28	1.24071E-9	299800
13	6.63E-34	2.998E8	1.673E-27	100	1.32186E-13	3.63574E-71.98767E-27	1.24071E-8	2.998E6
14	6.63E-34	2.998E8	1.673E-27	10	1.32186E-14	1.14972E-71.98767E-26	1.24071E-7	2.998E7
15	6.63E-34	2.998E8	1.673E-27	1	1.32186E-15	3.63574E-81.98767E-25	1.24071E-6	2.998E8
16	6.63E-34	2.998E8	1.673E-27	0.1	1.32186E-16	1.14972E-81.98767E-24	1.24071E-5	2.998E9
17	6.63E-34	2.998E8	1.673E-27	0.01	1.32186E-17	3.63574E-91.98767E-23	1.24071E-4	2.998E10
18	6.63E-34	2.998E8	1.673E-27	1E-3	1.32186E-18	1.14972E-91.98767E-22	0.00124	2.998E11
19	6.63E-34	2.998E8	1.673E-27	1E-4	1.32186E-19	3.63574E-101.98767E-21	0.01241	2.998E12
20	6.63E-34	2.998E8	1.673E-27	1E-5	1.32186E-20	1.14972E-101.98767E-20	0.12407	2.998E13
21	6.63E-34	2.998E8	1.673E-27	1E-6	1.32186E-21	3.63574E-111.98767E-19	1.24071	2.998E14
22	6.63E-34	2.998E8	1.673E-27	1E-7	1.32186E-22	1.14972E-111.98767E-18	12.40706	2.998E15
23	6.63E-34	2.998E8	1.673E-27	1E-8	1.32186E-23	3.63574E-121.98767E-17	124.07061	2.998E16
24	6.63E-34	2.998E8	1.673E-27	1E-9	1.32186E-24	1.14972E-121.98767E-16	1240.70611	2.998E17
25	6.63E-34	2.998E8	1.673E-27	1E-10	1.32186E-25	3.63574E-131.98767E-15	12407.06111	2.998E18
26	6.63E-34	2.998E8	1.673E-27	1E-11	1.32186E-26	1.14972E-131.98767E-14	124070.61108	2.998E19
27	6.63E-34	2.998E8	1.673E-27	1E-12	1.32186E-27	3.63574E-141.98767E-13	1.24071E6	2.998E20

Here h is planks constant= $\rho \cdot V \cdot (c \cdot \lambda)^2 \cdot \lambda = m \cdot A^2 \cdot c / \lambda = 6.23e-34$ (J-s)
 where E is energy of photon
 rho is the mass density
 m is the mass of the photon=1.67e-27 (Kg)
 V is volume
 c is velocity of light=2.998e8 (m/s)
 lambda is wave length (m)

A is the amplitude (m)

The amplitude of wave of photonic light using the relation given above are calculated over a wide range of wavelength [1]. For the whole range of spectrum of light the amplitude varies from 0.3 meter to 10^{-14} m. For the wavelength of 1000m the amplitude of sine wave is around micro meter. In the reference [1], the amplitude is written as 10^{-18} m. Please imagine that. This means that the light travels in linear manner not in sine wave. One needs to think and revisit Planks and Einstein relation for energy. The quantum mechanics which is based on these equations needed refocus and wave-particle dual nature of elementary or microscopic particles should be reconsidered.

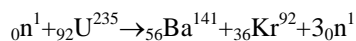
34) Scratching of $\text{Ba}(\text{Nd}_x\text{Ti}_{1-2x}\text{Nb}_x)\text{O}_3$, $\text{Na}_{0.5}\text{Bi}_{0.5}(\text{Nd}_x\text{Ti}_{1-2x}\text{Nb}_x)\text{O}_3$ bulk ceramic disks on sand paper gets heated up and cooled down. The solid solution of these two compounds and also ternary solid solution of above compounds with CaTiO_3 , BaZrO_3 gets heated up or cooled down. These materials also stick the butter paper due to charges produced on the ceramic disks up on scratching on sand paper. These materials also get heated up or cooled down with the application of electric field. These materials can be used in air conditioner (AC) to heat up or cool down the air in the rooms. The cooling in the refrigerators can also be done with the above ceramics. One needs to check whether appropriate heating and cooling of air in the room can be done with the appropriate number of ceramic disk or with appropriate size and electric field. The effective way of cooling and heating of air in rooms can be done by blowing air using fan on the heated or cooled ceramic samples.

35) It is generally said that the output is lower than input. In some cases the output is higher than 100%. This is not wrong as this is due to not knowing of other applied factors. For example the electromechanical coupling conversion is studied with measurement of capacitance with applied frequency. This is also done at constant temperatures. In my case I have studied the electromechanical coupling conversion by placing the ceramic sample in jig. The jig has constant spring constant and applies some stress which is not known. Because of this the output is higher than 100% due to cumulative work done by frequency and stress. The output is also very lower than measured in free state due to non cumulative work done by frequency and stress. If one is observing the output more than 100%, all the input applied parameters should be considered and checked.

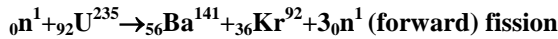
36) All the ceramic samples show modulus resonance and anti-resonance (electromechanical coupling conversion) at higher temperatures (in the range 673-870 K) and frequency (100 Hz-1MHz) placed in a jig. All these material shows electromechanical coupling factor (K) around 99.99%. Most of the ceramic samples shows this type of electromechanical coupling conversion of the order of 99.99% and can be used as electromechanical transducers and actuators in NAVAL field and other field such as ultrasonic transducer to image the baby or foetus in mother's womb with better resolution which need to be check. In our previous studies we have studied the barium titanate ceramics with rare-earth doping at A site i.e. $(\text{Ba}_{1-x}\text{Re}_x\text{TiO}_3)+5\% \text{SiO}_2$, (Re=Ce & Pr, x=0.003) [2]. These materials showed modulus electromechanical coupling conversion with magnitude around 99.99%. The resonance frequency is 3 KHz to 30 KHz depending up on temperature. At 3 KHz frequency the magnitude of wavelength is $1e5$ m (100 KM). These materials can be used as telecommunication devices by sending electromechanical waves (signals) and receiving the mechanical to electro signals. By operating at 3 KHz frequency the towers can be installed for each 100 KM area and there is no need of towers installed below 100 KM area. If the operating frequency is reduced then the wavelength would be longer. For 3 micro Hz frequencies the wavelength would be of the order of $1e14$ m. One should try doing telecommunication with device operated at lower frequencies rather than at higher frequencies.

37) Recycling of radioactive materials with the technology to produce new elements in order to avoid problem with dumping and handling of nuclear waste. There is also need to check whether the uranium can be produced with thorium with the technology to produce new elements. There is also need to check whether reversible reaction as given below occurs or not. One need to check this while operating nuclear power plants to produce electricity by uranium fission simultaneously for reversible reaction. If successful one can save time, money and power. If it is so then one can generate enormous amount of electricity with nuclear power plants. Research and development work in this direction is needed. Thrust for reversible reaction can be done by applying thermal energy with catalyst in a appropriate medium probably using deuterium water and check whether there is need of neutron for reversible reaction.

The fission of one atom of uranium-235 releases 202.5 MeV (3.24×10^{-11} J) inside the reactor. That corresponds to 19.54 TJ/mol, or 83.14 TJ/kg. This is around 2.5 million times more than the energy released from burning coal.

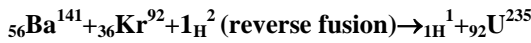


This above and below technology can also be used in rocket with the heat produced by nuclear reaction to burn sorbital and produce enormous steam to get appropriate thrust to move the rocket very fast.



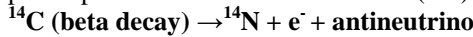
The Electromotive Force is given by equation [3] = $-3.42A^{2/3}+0.22Z^2/A^{1/3}$

Electromotive Force required to occur forward fission of ${}_{92}U^{235} + {}_{1}n^0 = -3.42A^{2/3}+0.22Z^2/A^{1/3} = -3.42*235^2/3+0.22*92^2/235^{1/3}$ is equal to 172.27 MeV (neglecting ${}_{1}n^0$).



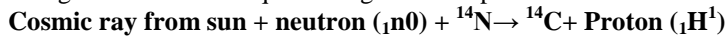
Electromotive Force required to for backward fusion of ${}_{56}Ba^{141}+{}_{36}Kr^{92}+{}_{1}H^2 = -40.44706-6.13155-5.22255$ using equation $-3.42A^{2/3}+0.22Z^2/A^{1/3}$ which is equal to -51.80 MeV.

For fusion reactions as given below requires energy to produce product. These reactions do not produce heat to run the nuclear power plants to produce electricity as for these reactions to occur energy is needed i.e. the reactions are endothermic. Only fission reaction of uranium produce enough thermal heat to run the nuclear power plants. The radioactive Carbon (${}^{14}C$) and nitrogen cycle (${}^{14}N$) is as follows [4].



Electromotive Force required to occur forward fission of ${}^{14}C$ (beta decay) = $-3.42A^{2/3}+0.22Z^2/A^{1/3} = -3.42*(12.011)^2/3+0.22*6^2/12.011^{1/3} = -161.00$ MeV

Using above reaction liquid nitrogen can be produced

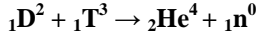


The electromotive force for the neutron is negligible, therefore one need to consider electromotive force for ${}^{14}N$.

The electromotive force for ${}^{14}N$ is =

$$-3.42A^{2/3}+0.22Z^2/A^{1/3} = -3.42*(14.007)^2/3+0.22*7^2/14.007^{1/3} = -219.19 \text{ MeV}$$

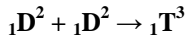
The fusion of deuterium and tritium gives Helium liquid and the equations are as follows [5]



The electromotive force for the above fusion reaction is given below=

$$-3.42A^{2/3}+0.22Z^2/A^{1/3} = -3.42*(2)^2/3+0.22*1^2/2^{1/3} + -3.42*(3)^2/3+0.22*1^2/3^{1/3} = -14.48 \text{ MeV}$$

The fusion reactions of two deuterium gives tritium and shown as follows



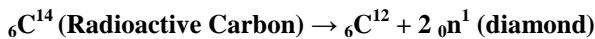
The electromotive force for the above fusion reaction is

$$3.42A^{2/3}+0.22Z^2/A^{1/3} = -3.42*(2)^2/3+0.22*1^2/2^{1/3} + -3.42*(2)^2/3+0.22*1^2/2^{1/3} = -4.38-4.38 = -8.76 \text{ MeV}$$

The fusion reaction of two tritium atoms to produce liquid helium is ${}_{1}T^3 + {}_{1}T^3 \rightarrow$ ${}_{2}He^4$

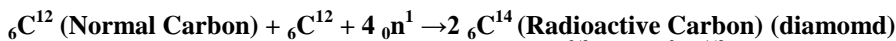
The electromotive force for the above reaction is = $3.42A^{2/3}+0.22Z^2/A^{1/3} =$

$$-3.42*(3)^2/3+0.22*1^2/3^{1/3} + -3.42*(3)^2/3+0.22*1^2/3^{1/3} = -20.20 \text{ MeV}$$



The electromotive force is given by equation $-3.42A^{2/3}+0.22Z^2/A^{1/3} =$

$$-3.42*(12.011)^2/3+0.22*6^2/12.011^{1/3} = -161.00 \text{ MeV}$$



The electromotive force is given by equation $-3.42A^{2/3}+0.22Z^2/A^{1/3} =$

$$-3.42*(12.011)^2/3+0.22*6^2/12.011^{1/3} + -3.42*(12.011)^2/3+0.22*6^2/12.011^{1/3} = -322.00 \text{ MeV}$$

From the above it can be inferred that the fission reaction of Uranium produces output thermal energy which is very high whereas the fusion reactions energy is needed to produce the product. Therefore the researchers are finding difficult to make hydrogen bombs by fusing the hydrogen atoms, deuterium and tritium. The product produced in the above endothermic reactions is liquid nitrogen, liquid helium and diamond made from pure carbon. In the above equation the electromotive force can be converted in to pressure by using $1 \text{ eV}/\text{Angstrom}^3 = 160.21766208 \text{ GPa}$. To produce liquid nitrogen, liquid helium and diamond the appropriate pressure in GPa should be applied in accordance with or equivalent to the electromotive force in eV.

38) Brain waves are strong waves having frequency below micro Hz [6] and the wavelength is of the order of $3 \times 10^{14} \text{ m}$ for the frequency 1 micro Hz. The doctors are reading brain pulses with sophisticated equipment not the brain waves. Lower is the frequency of brain waves larger is the wavelength keeping the velocity of light constant ($3 \times 10^8 \text{ m/s}$). This can be elucidated from the reading of brain waves of all kind of people, animals and

birds by god. And the thinking given by god is also a brain wave signals which our brain catches. The thinking is nothing but brain waves. The important point is frequency should be lower and the corresponding wavelength is higher. To read the brain waves one need to fabricate the device which is operated at lower frequency and correspondingly higher wavelength. The AUTOLAB PGSTAT 30 Low Frequency Analyzer is used to apply frequency in a wide range from 1 mHz to 1M Hz to measure the impedance, admittance. The company is in Netherlands and this AUTOLAB Company is familiar with the generation and utilization of lower frequencies. With the help of this company one needs to prepare device which transmit and receive low frequency signals (< micro Hz) and this will be helpful to read the brain waves having frequency well below micro Hz frequency).

$$E = h \cdot \nu = 6.63 \times 10^{-34} \times 1 \times 10^{-6} = 6.63 \times 10^{-40} \text{ J} = 4.14 \times 10^{-21} \text{ eV}$$

The number of electron in one coulomb of charge is 6×10^{18} , then $E = 4.14 \times 10^{-21} \times 6 \times 10^{18} =$

$$24.84 \text{ mV (in the above e is the electric charge).}$$

From the above it can be inferred that the brain wave are nothing but signals with lower frequencies (< micro Hz), and wave length ($> 1 \times 10^{14}$) and energy in terms of voltage is (< 24.84 mV)

39) To write computer software in an easy way in words and minimum number of electronic/electrical elements required for proper functioning of computer is given the reference paper [7].

40) Revisiting the mechanism of solid oxide fuel cells (SOFC's); its difficulties and probable new mechanism [8].

41) The Development of probable process technology to produce methanol, ethanol, propanol and butanol and lower alkanes from kitchen garbage via glucose and subsequent conversion of produced alcohol's and lower alkanes in to LPG (Butane and Propane), petrol (pentane, hexane, heptane and octane) [9]

42) Revisiting and disprove of evaluation of solar cell parameters and Einstein photo electric effect through reasoning and analysis and probable solution [10].

43) Disprove of Einstein theory of general relativity and its related theories using reasoning and analysis and probable equation using calculus instead of Einstein general theory of relativity [11].

44) Short notes on procedure of systematic analytical chemistry to detect one cation and one anion in the given salt [12].

45) Fabrication and Characterization of Ferroelectric thin film Solar cells [12].

46) Lightly doped crystallized silicon (LDOS) film with coplanar electrodes for bio-sensing application through current-voltage, impedance and surface potential measurements: Detection of proteins and antibody [13]

47) The ceiling fans blades are arranged horizontally to ground and ceiling and this creates cool air when fan is run, One need to check whether the more quantity and more cool air is blown by arranging the ceiling blades vertically to ground and ceiling.

48) The loud music created by big drum operated on both sides creates larger vibrations in the human body. One needs to check whether the loud sound created by big drum can image the baby in mother's womb by using appropriate device for generation and receiving the loud sound reflected back. One needs to check by this way whether it will be more effective to obtain the more resolution image. The sound can be made unidirectional by using the nozzle with diameter of the size of drum or the music recorder. The recorded sound can used and should be very near to person and this can be used for this purpose to obtain the good quality image. The process of taking the negative image should be done by trial and error like X-ray or the image obtained using ultrasound transducers is carried out. This needs research and development work.

49) The hard memory discs also called as secondary storage device are used to store the data. The hard drives are of some size to store the data. The capacity of the hard memory discs are of 500 GB (Giga Byte). Keeping the size and cost same one need to increase the storage capacity of hard memory disc to one Lakh Giga Byte. This can be done by using compressors to compress the data to 200 times less and store it on the hard memory discs. By doing this way one can increase the storage capacity of data to one Lakh Giga Bytes. One should do the storage/write or read the data in an easily way by using the compressors to compress the data and store it on the hard memory discs. Reading can be done without uncompressing the stored data. If successful

then one need to further increase the storage capacity of data with advanced compressors of data. In the case of 600 MB of compact disk (CD Read/Write) the storage capacity can be increased to 120 GB by compressing the data 200 times less through data compressors.

50) The Microsoft word document can be made easy to read and write the data and lot of time can be saved by using the software used in phone to write messages with word predictor. In the Microsoft word document, word and sentence predictors should be installed so as to process the writing and reading of data similar to writing the messages in GMAIL which has word and sentence predictor. By doing this way it is easy to write the document file and this also save the lot of time. In the word document software, software should also be installed to automatically translate the English document in any language. Software to translate the any language document in to English should also be installed. Software to correct the grammatical suggestor immediately should also be installed. In word document simple calculation like average, mean, median, mode, sum in the tabular columns or rows tabulated should also be performed using appropriate modification to software. Software should also be installed to paste the figures with appropriate font and size in an easy way. This will save the time. The figure pasted from the different software should also be opened in the word document to make appropriate changes at later time when needed. The figures pasted from different software should arrange the figures in one order in an easy way with appropriate font and size thereby saving lot of time. In any software to plot the figures, if one font and size is selected then it should be atomically applied there after thereby saving time and work to do this. The simulation or fitting of experimental data is very simple in ORIGIN 6.1 software. If a document is written with figures pasted at appropriate position in word document and if some paragraphs are needed to be written before the figure and if this changes the position of figure then the paragraph written should be automatically written after the figure and this will save the time to reposition the figure. When copy and pasting of word document is done then the font and size should be automatically selected to adopted font and size previously. The copying of paragraphs in to word document using CTRL-ALT-ES changes the bold, subscript, superscript and italic font this need to be corrected once again. This problem should also be rectified to save the time and effort to do the work. While writing papers, the first references written in one style should be extended automatically for the other reference thereby saving time. By doing as stated above in addition to saving the time, the work can be completed very fast even those persons who have not learned typewriting can also prepare document faster. This way (using word and sentences predictor) it will be very easy to write the book faster.

51) The word and sentences predictor will be very useful to school children's to prepare notes on computer and then take a print out to study the notes prepared. This will save the time of writing the notes and saved time is used to learn the notes there is no need of learning the typewriting. This will also be helpful to teachers to prepare the study notes in short time. There is no need of purchasing the text books, the study material will be prepared by teachers and its printout can be distributed to school children's this will save money and time, saved time can be utilized to learn the study material by children's. It will be equally helpful to teachers, parents and students to prepare the notes and learn the notes as this will save the time and saved time can be utilized to learn the notes by students this can be done in class room itself and there is no need of giving the homework to students by teachers. After giving the study material prepared by teacher to all the students, then the notes should be recited to children's until they memorize it, this can be done in the time which they have saved in school hours. There is important needed focus so that the school children's should be able to read and write the alphabets, words and sentences in any language (English, Hindi, any regional language) before they use the computer. If they can do so then school children's should be taught to prepare the notes on computer.

52) The Microsoft owner Bill Gates is upgrading the windows software every year and is seeking fee for the installation of upgraded windows software. This should not happen; once the up gradation of software is done it should be installed freely for at least five years of time. There is no much big difference in the windows software and upgraded windows software. The installation of other software's all over the ages (old or new software) should be done in an easily way and should work properly irrespective of the operating system one is using. This should be applied for all other software's all over the ages. If all other software's do not work on the upgraded software of windows, then what is the use of up gradation of software? The up graded software should be compatibility with all other software's which are old or new all over the ages. The cost of up graded windows 11 pro software should be lower than the present cost as the present cost is very high and there is no much big difference in the old and up graded windows software. The old software's are not working in the up graded windows software due to incompatibility issue. This problem should be rectified otherwise there is no use of up gradation of windows software.

53) Supercomputers use more than one central processing unit (CPU). These CPUs are grouped into compute nodes, comprising a processor or a group of processors—symmetric multiprocessing (SMP)—and a memory block. At scale, a supercomputer can contain tens of thousands of CPUs. The super computer works

well if the every CPU is placed at a distance of 2 to 3 foot with each other and a fan is installed to cool the CPU. Otherwise the heat generated will disable the CPU, thereby the super computer do not work properly. The CPU which is malfunctioning cannot be found out easily as hundreds of thousands of CPU's are part of super computer. To resolve this problem an alarm in each CPU should be installed so as to find the CPU which is malfunctioning by ringing the alarm automatically. The processing of data can be done easily by dividing the work by main CPU to other CPUs of super computer thereby doing the data processing or work easily in no time. Similar to barcode reader, the super computer can be made to read the hand written notes or books and typed books or notes and prepare the soft document of it in no time. The data in the form of speech should also be processed by super computer to make a soft document of the data along with the voice record. If possible reading of brain waves/thinking which are of the frequency lower than 600 micro Hz should be carried out by catching the sound waves below 600 micro Hz using appropriate device in combination with super computer and prepare the soft document of the thinking/brain wave. The brain wave is different from brain pulses which is due to flow of blood. Necessary device/components should be combined with the super computer to read the thinking/brain waves. The main operator of the super computer should be human being rather than the super computer itself as the super computer cannot judge what is right and wrong. The programming of the super computer made by human being should be crosschecked many times before installation on to the computer to reduce the bad outcome. The super computer should minimize the time to do the work and enhance the work output. The super computer should be protected with virus and hacking of data or website. The main CPU of super computer should check for virus or hacking of data or website and if positive of no harm/damage then it is allowed to other CPUs of the super computer thereby reducing the overall collapse of the super computer. The mother board chips of all the CPUs of super computer should be dust free or rust free or moisture free so as to work for longer time without any fault. To be dust free and moisture free the super computer should be installed in clean room environment. All the CPUs of the super computer should be of same configuration and should have same operating system to avoid the faster or delayed response of all other CPUs which are part of super computer. All electrical and electronic components and operating system of CPUs of super computer should be same and of standardized for proper and effective function of super computer. In addition to above, the software to check the virus, hacking and malware should be very faster and effective to reduce the chances of damage it will create to all other CPUs of super computer. The operating frequency of CPU is 2.1 GHz. This means that the data is processed in nano seconds of time. This is not the observed case as the data is copied and pasted of Giga bytes takes twenty minutes to half an hour. To make super computer with ten numbers of CPUs equivalents to hundreds and thousands of CPU, the data should be processed with Giga or Tera bytes per second. If one is successful in processing the data whether writing or copying or pasting the data with Giga or Tera bytes per second then the super computer can be made by using only one CPU with processing speed Giga or Tera bytes per second. Therefore one needs to make a computer processing unit (CPU) with data processing speed Giga or Tera bytes per second. If successful then the every family can have one super computer. The storage capacity of the primary and secondary memory disks can be increased with the use of data compressors like WINZIP and WINRAR or other software with 200 times less space occupation. The question is how compressors work. The compressors should use nano or pico scale fonts to increase the storage capacity of primary or secondary memory hard disk. While retrieving the compressed data it should be carried out at normal font of times new roman with 12 point size. In the computer scanning machine it should be made to work as scanner cum zerox for home application. In making the super computer as stated above, the price of computer should not be hiked as it is not much bigger difference.

54) In addition to human beings, animals, birds and insects have their own means of communication with each other and with human beings. The animals, birds and insects make sound notes like music notes in songs made by humans by using instruments. If one pay attention to the sound nodes make by animals, birds and insects then one (human being) can understand what they are saying. Animals, birds and insects know regional language to communicate with the humans in the form of sound nodes like music nodes in song. If one is hearing the sound of insects then they should pay attention to understand the sound nodes made by insects similar to music nodes in songs made by human beings using musical instruments. If one wants to communicate with the animals, birds and insects one can speak loud or think in brain, they can catch our brain waves and can communicate accordingly. One can try to communicate with the animals, birds and insects.

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