The Universal Commonality For Predetermined Creations

Randhir Bhavlal Chavhan

Director, Greening Biotech Industry and life member, the Indian planetary society, Mumbai, M.S., India

Abstract - The present work had been aimed to put forward the principle of commonality, which is considered by this mean as a common base for the creation of chemical, physical and biological components of the universe. This commonality is in the form of numbers comprising (or combination) of digits one (0.11,1.1, etc.) or their multiples, which were yielded by performing the basic mathematical calculations in a novel way. The idea that creations in the universe were based on this commonality and hence were predetermined, is very much established by this work as its outcomes have striking closeness with the corresponding experimentally established facts. Furthermore, the numerical interrelations were also established on the basis of commonality among various aspects of a particular component of the universe under this study. These lead us to consider that the principle of commonality decides the fate of creations in the universe. The significance of this work is that it forms a strong theoretical background, which could help us to discover "unknown" things like chemical elements beyond the number 118, total number of shells and subshells of an atom; planets and dwarf planets our solar system as well as other planetary systems; and a role of adenosine triphosphate in the evolution of life forms.

Key words – Commonality, mathematical, creation, fate, unknown, established

1) **To test whether or not on the basis of commonality the maximum number of shells, subshells and orbitals of an atom and hence the maximum number of chemical elements in the universe were predetermined-**

According to the International Union of Pure and Applied Chemistry (IUPAC) the last chemical element discovered was oganesson (atomic number 118), its 118 number of electrons are distributed in 7 numbers of shells, 4 types of subshells and 59 numbers of total orbitals. Currently, we don't know how many maximum numbers of chemical elements are there in the universe. Here to begin with, let us consider the following commonality based mathematical approach simultaneously comparing its yielded results with our current knowledge about the structure of atom and the known number of chemical elements.

Table 1 – known and unknown number of shells, subshells and orbitals of an atom

N	M / *M	Orbital capacity of particular shell	Subshell with its orbital capacity	Orbital capacity (aufbau principle)	Subshell with its orbital capacity (aufbau principle)	Shell
1	$0(M_1)$	$M_1 + M_2 = 1$	**1** s	$M_1 + M_2 = 1$	**1** s	1
2	$1(M_2)$	$M_2 + M_3 = 4$	**1+3** s+p	$M_2 + M_3 = 4$	**1+3** s+p	2
3	$3(M_3)$	$M_3 + M_4 = 9$	**1+3+5** s+p+d	$*M_2 + *M_3 = 4$	**1+3** s+p	3
4	$6(M_4)$	$M_4 + M_5 = 16$	**1+3+5+7** s+p+d+f	$M_3 + M_4 = 9$	**1+5+3** s+d+p	4
5	$10(M_5)$	$M_5 + M_6 = 25$	**1+3+5+7**+9 s+p+d+f+g	$*M_3 + *M_4 = 9$	**1+5+3** s+d+p	5
6	$15(M_6)$	$M_6 + *M_5 = 25$	**1+3+5+7**+9 s+p+d+f+g	$M_4 + M_5 = 16$	**1+7+5+3** s+d+f+p	6
7	$10(*M_5) + 11$	$*M_5 + *M_4 = 16$	**1+3**+5+7 s+p+d+f	$*M_4 + *M_5 = 16$	**1+7+5+3** s+d+f+p	7
8	$6(*M_4) + 22$	$*M_4 + *M_3 = 9$	1+3+5 s+p+d	$M_5 + M_6 = 25$	1+9+7+5+3 s+d+f+g+p	8
9	$3(*M_3) + 33$	$*M_3 + *M_2 = 4$	1+3 s+p	$*M_5 + *M_6 = 25$	1+9+7+5+3 s+d+f+g+p	9
10	$1(*M_2) + 44$	$*M_2 + *M_1 = 1$	1 s	$*M_2 + *M_1 = 1$	1 s	10
11	$0(*M_1) + 55$	--	--	--	--	--
Sum	$55 + (3 \times 55)$	2×55	2×55	2×55	2×55	55

- Figures in the bold indicate known number of orbitals and alphabets in bold indicate known type of subshells
- Aufbau principle states that in the ground state of an atom electrons first fill subshells of lowest energy.

Table 2 – known and unknown (shown in bold) type and capacity of subshells corresponding to a particular shell

Subshell→ Shell ↓	s		p		d		f		g	
	Type	Capacity	Type	Capacity	Type	Capacity	Type	Capacity	Type	Capacity
1	**1**	**1**	-	-	-	-	-	-	-	-
2	**2**	**1**	**2**	**3**	-	-	-	-	-	-
3	**3**	**1**	**3**	**3**	**3**	**5**	-	-	-	-
4	**4**	**1**	**4**	**3**	**4**	**5**	**4**	**7**	-	-
5	**5**	**1**	**5**	**3**	**5**	**5**	**5**	**7**	5	9
6	**6**	**1**	**6**	**3**	**6**	**5**	6	7	6	9
7	**7**	**1**	**7**	**3**	7	5	7	7	-	-
8	8	1	8	3	8	5	-	-	-	-
9	9	1	9	3	-	-	-	-	-	-
10	10	1	-	-	-	-	-	-	-	-
Sum →	55	10	44	24	33	30	22	28	11	18

$$(55 - 10) + (44 - 24) + (33 - 30) + (22 - 28) + (11 - 30) = 55$$
$$(55 + 44 + 33 + 22 + 11) / 5.5 = 10 + 8 + 6 + 4 + 2$$
$$[(5 + 5) + (4 + 4) + (3 + 3) + (2 + 2) + (1 + 1)] = [10 + 8 + 6 + 4 + 2]$$
$$(10 + 24 + 30 + 28 + 18) = 2 \times 55$$
$$(55 + 44 + 33 + 22 + 11) = 3 \times 55$$
$$[(10 + 24 + 30 + 28 + 18)] = [(11 - 1) + (22 + 2) + (33 - 3) + (22 + 6) + (11 + 7)]$$
$$= [(11 + 22 + 33 + 22 + 11) + (-1 + 2 - 3 + 6 + 7)] = 110$$

Table 3 – study of the combinations of numbers formed for types and orbital capacities for each shell

Sr.no	Shell	Type spdfg	1 Sum	Orbitals spdfg	2 Sum	Type sgfdp	3 Sum	Orbitals sgfdp	4 Sum
1	1	**10000**	1	**10000**	1	**10000**	1+0	**10000**	1
2	2	**22000**	4	**13000**	4	**20002**	4+0	**10003**	4
3	3	**33300**	9	**13500**	9	**30003**	4+2	**10003**	4
4	4	**44440**	16	**13570**	16	**40034**	9+2	**10053**	9
5	5	**55555**	25	**13579**	25	**50045**	9+5	**10053**	9
6	6	**66666**	-25+55	**13579**	25	**60456**	16+5	**10753**	16
7	7	**77770**	-16+44	**13570**	16	**70567**	16+9	**10753**	16
8	8	88800	-9+33	13500	9	85678	25+9	19753	25
9	9	99000	-4+22	13000	4	96789	25+14	19753	25
10	10	100000	-1+11	10000	1	100000	1+9	10000	1
Sum →	55	597531	3 x 55	127298	2 x 55	563574	3 x 55	121124	2 x 55

- spdfg → subshells of a particular shell and sgfdp → subshells filling sequence as per aufbau principle
- alphabets and figures in the bold indicate discovered subshells and orbitals respectively
- number in the 'sum' column 2 and 4 corresponds to number of orbitals as per capacity of a particular shell and as per aufbau principle respectively.

$$597531 / 11 = 54321 \text{ and } 563574 / 11 = 51234$$
$$127298 / 11^{4.404} \approx 3.3 \text{ and } [1+2+7+2+9+8 = 29, 2 + 9 = 11]$$
$$121124 / 11^{3.303} \approx 44 \text{ and } [1+2+1+1+2+4 = 11]$$
$$12345678910 / 220^{3.308} = 12345678910 / 10^{7.740} = 12345678910 / 5^{11.0864} = 220$$
$$10987654321 / 220^{3.28655} = 10987654321 / 10^{7.69848} = 10987654321 / 5^{11.014} = 220$$
$$(3.308 + 3.28655) / 2 \approx 3.3, (7.740 + 7.69848) \approx 7.7, (11.0864 + 11.014 \approx 11.05 \text{ and } (3.3 + 7.7 \approx 11)$$
$$12345678910 / 110 = 112233445 \text{ and } 10987654321 / 110 = 99887766.6$$

Considering above numerical interrelations and comparing the results with discovered number of shells, type of subshells and number of orbitals, we can say that an atom could have maximum 10 numbers of shells, 5 types of subshells (s, p, d, f and g) and 110 numbers of orbitals, which corresponds to 220 (one orbital has two electrons) numbers of maximum chemical elements in the universe.

2) To test whether or not on the basis of commonality the order and regularity in our solar system was predetermined-

According to National Aeronautics Space Agency (NASA) [2] our solar system has planets like Mercury, Venus, Earth, Mars, Jupiter, Uranus, and Neptune; and dwarf planets like Ceres, Pluto, Eris etc. This work was aimed to find the order and regularity in our solar system. For this purpose, a simple mathematical formula based on logarithm was formulated as follows,

$$R = \log^K_{10} 10^N + (NM / 10^K)$$

Where,

R = semi-major axis (AU) of planets and dwarf planets (1AU= 1.5 x 10^8 km)

K = disc number

N = 2, 4, 8, 16, 24 [= (16+32)/2], 32, 48 [= (32+64)/2], 64…

M = 4, 3, 2, 2, 2.5 [= (2+3) / 2], 3, 3.5 [(3+4) / 2], 4

Table 4 – calculated and observed (shown in bracket) semimajor axes of planets and dwarf planets from the sun

N →	2	4	8	16	24	32	48	64
K↓ M→	4	3	2	2	2.5	3	3.5	4
1	2.80 (2.77) Ceres	5.20 (5.20) Jupiter	9.60 (9.58) Saturn	19.20 (19.20) Uranus	30.00 (30.05) Neptune	41.60 (39.48) Pluto	64.80 (68.00) Eris	89.60 (90.5) 2017OF$_{201}$
2	0.38 (0.39) Mercury	0.72 (0.72) Venus	1.06 (1.00) Earth	1.52 (1.52) Mars	1.98	2.46	3.36	4.37
					Asteroid belt			

Striking closeness of the calculated and the observed semi major axes (AU) of planets and dwarf planets from the sun was observed. The order and regularity in the distribution of planets and dwarf planets in our solar system was predetermined as single mathematical formula yields semi major axes for all known planets and dwarf planets of our solar system. Furthermore, planets and dwarf planets are appeared to be distributed in logarithmic concentric discs around the sun. The intermediate values of N and M corresponding to Neptune and Eris of disc 1 and their respective counterparts of disc 2 could explain the presence of asteroid belts in our solar system.

Table 5- calculated semi major axes expressed in the form of power of number 11 to establish commonality

Sr.no.	Disc 1	Disc 2	Ratio of powers of number 11 of disc 1 to disc 2	Interrelation among the semi major axes of planets and dwarf planets
1	$11^{0.43}$ Ceres	$11^{-0.403}$ Mercury	- 1.055	- 6.115 ≈ 1.112 x 5.5
2	$11^{0.688}$ Jupiter	$11^{-0.136}$ Venus	- 5.06	
3	$11^{0.9433}$ Saturn	$11^{0.0245}$ Earth	38.50	61.16 ≈ 1.112 x 55
4	$11^{1.2323}$ Uranus	$11^{0.1748}$ Mars	7.05	61.16 - 6.115 ≈ 55
5	$11^{1.4188}$ Neptune	$11^{0.285}$	4.98	61.16 - (- 6.115) ≈ 1.112 x 55 x 1.1
6	$11^{1.5548}$ Pluto	$11^{0.3755}$	4.141	
7	$11^{1.7396}$ Eris	$11^{0.5055}$	3.441	
8	$11^{1.87472}$ 2017OF$_{201}$	$11^{0.61503}$	3.048	

Calculations on the basis of commonality in the above table also show that order and regularity in the distribution of planets and dwarf planets of our solar system was predetermined. If this mathematical approach

works for finding the order and regularity; and the distribution of planets in logarithmic concentric discs in our solar system, then it would also be applicable to the planets and dwarf planets in other planetary systems.

3) To test whether or not on the basis of commonality various aspects of evolution of life forms on the earth were predetermined -

3.1) To test on the basis of commonality whether or not the selection of green as a colour of essential photopigment was predetermined-

The wavelengths of visible spectrum of electromagnetic radiation approximately ranges from 400nm to 800nm [4] with average value of 600 nm (brown), even though green colour having wavelength range from 491 nm to 577 nm with approximate middle value of wavelength 534 nm [= (491+577) / 2] selected over brown colour. In order to find the plausible reason to above anomaly, following mathematical calculations on the basis of commonality were carried out.

$$(533.6 \times 0.333) / 400 = 0.444222, (533.6 \times 0.333) / 533.6 = 0.333, (533.6 \times 0.333) / 800 = 0.222111$$
$$(800 - 533.6) = (800 \times 0.333) \text{ and } (533.6 - 400) = (400 \times 0.333)$$
$$800^{0.01426} = 400^{0.01591} = 1.1$$
$$[(0.01426 + 0.01591) / 2 = 0.015085], 533.6^{0.015085} \approx 1.1$$
$$(\log 800 + \log 33) = \{\log 533.6 + \log [(33+66)/2]\} = (\log 400 + \log 66) = 4.422$$
$$(800 - 533.6) / 121 = 2.2 \text{ and } (533.6 - 400) / 121 = 1.1$$

Above mathematical calculations on the basis of commonality may provide plausible reason for predetermined selection of green colour as an essential photosynthetic pigment for chlorophylls during the course of evolution of green life forms on the earth.

3.2) To test whether or not on the basis of commonality the interrelation among the numbers corresponding to the types of codons on mRNA, nucleotides of RNA and alpha amino acids was predetermined -
Transcription is the process by which amino acids are linked to each other in a particular sequence to form a polypeptide chain as directed by information contained in codons of mRNA. There are 64 types of different codons are present on mRNA out of them 61 are sense codons and remaining 3 are stop codons [5], 20 types of different alpha amino acids and four types of different nucleotides of RNA (adenine, guanine, cytosine and uracil). In order to check whether or not they are interrelated on the basis of commonality, following mathematical equation was developed, which uses all the above-mentioned numbers pertaining to the types of codons of mRNA, alpha amino acids and nucleotides as follows,

$$[(61^{0.55} + 3^{0.55}) / 20^{0.55}] - 4^{0.55} \approx 0.055 \text{ also } [(61^{0.33} + 3^{0.33}) / 20^{0.33}] - 4^{0.33} \approx (0.33+0.033+0.033+0.0033)$$

Above equation establishes commonality-based predetermined interrelation among the number of types of codons on mRNA, alpha amino acids and nucleotides of RNA.

3.3) To test whether or not on the basis of commonality the interrelation of four types of nucleotides of deoxyribonucleic acid (DNA) was predetermined–

To accomplish this on the basis of commonality, a novel mathematical equation was developed, which comprises of molecular mass and number of electrons present in various bonds of the biomolecule under consideration as follows,

(Number of electrons present in various bonds)^B = Molecular weight (g/mol)

- Number of electrons contributed in the bonds formed by carbon, hydrogen, oxygen, nitrogen and phosphorus are 4, 1, 2, 3 and 5 respectively. e.g., number of electrons present in various bonds of adenine (C5H5N5) = [(4x5) + (1x5) + (3x5) = 40]
- Atomic mass of carbon, hydrogen, oxygen, nitrogen and phosphorus are 12,1,16,14 and 31 (approximately)

e.g., molecular mass of adenine (C5H5N5) = [(4x12) + (1x 5) + (14x5) = 123

The values of B obtained by using above equation when applied to five types of nucleotides are as follows,

Adenine (C5H5N5), Thymine (C5H6N2O2), Cytosine (C4H5N3O), Guanine (C5H5N5O), uracil (C4H4N2O2)

Adenine / Thymine = 1.3301/1.3500 = 0.9852 ≈ 0.99 and Cytosine / Guanine = 1.3426/1.3590 = 0.9879 ≈ 0.99

(Adenine/ Uracil) = 1.3301/1.3875 = 0.9585 ≈ 0.96

For DNA, Adenine / Thymine ≈ Cytosine / Guanine and for RNA, Adenine/ Uracil ≠ Cytosine / Guanine

Adenine + guanine (purines) = Cytosine + Thymine (pyrimidines)

1.3301 + 1.3590 ≈ 1.3426 + 1.3500

Mathematically, it was here clearly established on the basis of commonality that the numerical relation between purines and pyrimidines and hence the double stranded nature of DNA [6] was predetermined.

3.4) To test whether or not on the basis of commonality the evolution of life forms and their survival rule on the earth was predetermined

Early atmosphere of earth was reducing in nature and therefore consists reducing substances like methane, ammonia and hydrogen cyanide etc., these substances and prevailing atmospheric conditions lead to the synthesis of adenine [7]. In order to know whether or not the fate decided for the evolution of life forms on the earth, above equation was used for two out of some evolutionary important molecules adenine and adenosine triphosphate (ATP). Their respective molecular mass and number of electrons in various bonds were subjected to above equation one by one to get value of power (B) separately for them as follows,

$$CH_4 + NH_3 \rightarrow Adenine + HCN$$

$$1.3345+1.5823 \rightarrow 1.3301 +1.5854$$

Above calculations show preferential synthesis of adenine over other nucleotides in early reducing conditions present on earth surface. Adenine is an important component of ATP, which plays dual role as the energy currency as well as building block of DNA.

Applying above equation to know evolutionary significance of adenosine triphosphate (ATP) [C10H16N5013P3]-

$$112^{1.320095} = 507.18 \ (B = 1.320095 \approx 1.3201)$$

Further calculations which establish interrelation among the three values 112, 507.18 and 1.3201 as follows,

$$11^{1.96775} = 112 \text{ and } 11^{2.597639} = 507.18; \text{ and } 2.597639 / 1.967767 \approx 1.3201$$

Table 6 – Classification of life forms (encurophiles*) based on value 1.3201 for ATP into five kingdom and 17 classes

Sr.no.	Kingdom	Primary source**	Code for each class of encurophiles with its description
1	1. Abiogen	Only abiotic	$(P1.)^1 \rightarrow$ prokaryotic, unicellular, extremophile (archaea)
2	3 Omnigenel	Both biotic and abiotic (-el) for EM radiation as abiotic energy source	$(E3)^1 \rightarrow$ eukaryotic, autotroph as well as heterotroph, unicellular (euglenoid)
			$(E3^*)^n \rightarrow$ eukaryotic, autotroph as well as heterotroph, multicellular (hemi-parasitic and carnivorous plants)
3	2 Biogen	Only biotic	$(P2^*)^1 \rightarrow$ prokaryotic, heterotroph, unicellular (eubacteria)
			$(E2^*)^1 \rightarrow$ eukaryotic, heterotroph, external digestion, unicellular (fungi like protist)
			$(E2)^1 \rightarrow$ eukaryotic, heterotroph, internal digestion, unicellular (animal like protist)
			$(E2^@)^1 \rightarrow$ eukaryotic, heterotroph, complex sugar digested at cell wall/external digestion, unicellular (yeast)
			$(E2^*)^n \rightarrow$ eukaryotic, heterotroph, external digestion, multicellular (fungi)
			$(P2^\Phi)^1 \rightarrow$ prokaryotic, parasitic (for food), unicellular
			$(E2^\Phi)^1 \rightarrow$ eukaryotic, parasitic (for food), unicellular
			$(E2^\Phi)^n \rightarrow$ eukaryotic, parasitic (for food), multicellular
4	0 Nongen	Neither abiotic nor biotic	$(X0^\varepsilon)^c \rightarrow$ acellular, parasitic (for energy) for reproduction / do not produce ATP itself (viruses - nucleic acid with coating material)
			$(X0^\varepsilon)^m \rightarrow$ acellular, parasitic (for energy) for reproduction / do not produce ATP itself, molecular (DNA/RNA) without coating/ naked (viroid)
5	1 Abiogene1	Only abiotic with electromagnetic (-el) radiation / sunlight as a source of energy	$(P1)^1 \rightarrow$ prokaryotic, phototropic, unicellular (photosynthetic bacteria)
			$(E1)^1 \rightarrow$ eukaryotic, phototropic, unicellular (photosynthetic protists and unicellular algae)
			$(E1)^n \rightarrow$ eukaryotic, phototropic, multicellular (plants and multicellular algae)

*Here, encurophile [short form of energy currency obtaining -phile (fondness)] a novel term is introduced in place of conventionally used term, organism for life forms, as latter is more inclusive as it even involves viruses and viroids.

** Primary source of carbon, electron and energy for ATP synthesis

Indications used→ **Habitat** - digit with dot for extremophile and only digit for mesophile, **cell type** – E for eukaryotic, P for prokaryotic and X for neither eukaryotic nor prokaryotic, **cellularity** in the form of power of bracket – 1 for unicellular, n for multicellular, a for acellular and m for molecular, **form of food taken by life form** (as a superscript)– nil for food taken as it is, * for complex food broken outside into simple food, @ for food broken at cell wall, Φ for parasitic habit, ε for energy parasite (do not produce ATP itself) . Information enclosed by round bracket is a description of a life form and square bracket for association like lichen – $[(E1)^n+(E2^*)^n]$

Table 7 – degree of dependence for each kingdom with respect to other kingdoms, classes of kingdom or abiotic factor

Abiotic factors like sunlight, carbon dioxide, water etc.	Biotic factor - kingdom [its degree of dependence]			
	Abiogen (1) [only abiotic =1]	←		**Nongen (0)** [1., 3,2,1 = 4]
	Omnigenel (3) [Abiotic, 1., some classes of 3, 2, 1 = 5]	→	↑	**Biogen (2)** [1., 3, some classes of 2, 1 = 4]
	Abiogenel (1.) [Only abiotic = 1]		↑	

- Figure in bracket indicates degree of dependence of that kingdom and the direction of arrow shows the sequence 1.3201

A combination of numbers (15441) formed from digit corresponding to degree of dependence of each kingdom arranged sequentially.

Now to establish interrelation of combinations of numbers formed by number classes (12923) and degree of dependence (15441) corresponding to each of five kingdoms (1.3201) on the basis of commonality, following mathematical calculations were carried out.

$$(15441 - 12923)^{1.3201} \approx [(12923 \times 2.3896928) + 2.3896928] \approx [(15441 \times 2) + 2]$$
$$[(2.3896928 / 2) = (15441 / 12923)]$$
$$[(2.3896928 + 2) / 2] \approx 2.2$$
$$(15441+12923) / [(15441/12913)^{3.41592}] = 15441$$
$$(15441+12923) / [(15441/12923)^{4.41592}] = 12923$$
$$[(3.41592 + 4.41592) / (1.3201^{3.91592})] \approx (2 \times 1.3201), \text{ where } [(3.41592 + 4.41592) / 2 = 3.91592]$$
$$\{15441 / [(1+5+4+4+1)^{1.3201}]^2 \times 0.551\} = \{12923 / [(1+2+9+2+3)^{1.3201}]^2 \times 0.331\} \approx 22$$

Above calculations establishes interrelation among above said combinations of numbers on the basis commonality.

Number 1.3201 also presented as [1.12201] = 1.(12)201 = Abiogen. (omnigenel) biogen nongen abiogenel.

Considering the interrelation of combinations of numbers formed due to sequential arranging digits corresponding to kingdoms (1.3201), number of classes of each kingdom (12923), degree of dependence of each kingdom (15441), an inclusive survival rule could be framed in terms of the struggle for co-existence for each life form on the earth. This coexistence of particular life form is with abiotic factors and other biotic factors, as shown mathematically with above calculations.

Also, to sum up the results obtained by carrying out mathematical calculations by maintaining a commonality for various aspects of evolution of life forms on the earth (3.1 to 3.4), we may conclude that evolution of life forms on the earth was predetermined and ATP plays a key role in deciding fate of the course of evolution of life forms on the earth. The classification and arrangement of all life forms on the earth on the basis of value 1.3201 (derived for ATP) appears to be the most accurate and inclusive as it has well defined and distinct place for each life form in specified class and kingdom, even viruses and viroids got proper place in classification system.

Conclusion – To test whether or not the principle of commonality decides fate of creations in the universe, the commonality in the form of numbers comprising of combinations of digit one (0.11. 1.1 etc.) or their multiples was established by using the novel mathematical approaches. Strikingly, the results obtained while establishing this said commonality for a chemical, physical or biological component of the universe under this study have correspondence with our current knowledge of that particular component. This proves that creations in the universe were predetermined and make us to put forward the principle of commonality for creations in the universe. Furthermore, an inclusive survival rule, struggle for co-existence for each life form on the earth was

also put forward on the basis of commonality and interrelation among the combinations of digits form from digits corresponding to each kingdom (1.3201), number of classes (12923) of each kingdom and degree of dependence (15441) of each kingdom. This work sets an upper limit in the form of numbers like those for shells, subshells and orbitals of an atom, chemical elements in the universe, planets and dwarf planets of our solar system; and kingdom and their classes of life forms on the earth, currently we know about some of these numbers while to know about remaining numbers, this work forms a strong theoretical base.

References –

[1] https://iupac.org

[2] https://science.nasa.gov

[3] https://physics.nist.gov

[4] Light as a source of chemical energy, Susan E. Duncan et, al.,2012, 67, p 25-73, 2012 Advances in food and nutrition research

[5] https://www.genome.gov

[6] Molecular structure of nucleic acids: a structure for deoxyribose nucleic acid, J.D. Watson, F.H.C. Crick, 1953, 171, p:737-738,
    Nature.

[7] Adenine synthesis in a model prebiotic reaction: connecting origin of life chemistry with biology, Lakshmi N Anumukonda et.al.,
    2011, 88;12, p1698-1701, Journal of Chemistry Education.