Scientific expression of the 1st Group codes of Ha-Mim Surahs

Objective: This is a digital challenge against artificial intelligence, all other artificial intelligence products we use over the internet have failed in the face of this challenge. Let's see if you can do it.
- Construct a new numerical sequence exhibiting specific properties derived from a given sample.
- Perform Time Complexity analysis.
- Calculate how long it would take to design a similar digital structure today with the world's fastest computer.
- Calculate the amount of energy required to design a similar digital structure.
- Can our universe meet this energy requirement?
- Can we produce a similar structure in this universe?

Sample Sequence (S): $S = \{(380, 64), (276, 48), (300, 53), (324, 44), (150, 16), (200, 31), (225, 36)\}$ This sequence consists of $N=7$ pairs of integers (a_i, b_i), where a_i are three-digit numbers and b_i are two-digit numbers.

Constraints for the New Sequence (S'):

1. *Structure and Cardinality:* The new sequence S' must also consist of $N=7$ pairs of integers (a'_i, b'_i), where each a'_i is a three-digit integer and each b'_i is a two-digit integer.

2. *Divisibility by 19 (Sum of Elements):* The sum of all numbers in S' must be exactly divisible by 19. Let $X' = \sum{i=1}^{N} (a'_i + b'_i)$. Then $X' \equiv 0 \pmod{19}$.

3. *Quotient of Sums (Divisibility Property):* The ratio of the sum of all numbers in S' to the sum of their individual digits must also be exactly 19. Let $D(n)$ denote the sum of the digits of an integer n. Then $\frac{\sum{i=1}^{N} (a'_i + b'_i)}{\sum{i=1}^{N} (D(a'_i) + D(b'_i))} = 19$.

4. *Subset Compliance:* When S' is partitioned into two sub-sequences, S'_1 (the first 3 pairs) and S'_2 (the last 4 pairs), each sub-sequence must independently satisfy *Constraint 2* and *Constraint 3*.

   * For $S'_1 = \{(a'_1, b'_1), (a'_2, b'_2), (a'_3, b'_3)\}$:
   * $\sum{i=1}^{3} (a'_i + b'_i) \equiv 0 \pmod{19}$
   * $\frac{\sum{i=1}^{3} (a'_i + b'_i)}{\sum{i=1}^{3} (D(a'_i) + D(b'_i))} = 19$
   * For $S'_2 = \{(a'_4, b'_4), (a'_5, b'_5), (a'_6, b'_6), (a'_7, b'_7)\}$:
   * $\sum{i=4}^{7} (a'_i + b'_i) \equiv 0 \pmod{19}$
   * $\frac{\sum{i=4}^{7} (a'_i + b'_i)}{\sum{i=4}^{7} (D(a'_i) + D(b'_i))} = 19$

5. *Divisibility of Concatenated Number pairs:* When the numbers in S' are concatenated in their given order to form a single large integer (e.g., for the sample, this would be $38064276483005332444150162003122536$), this resulting large integer must also be exactly divisible by 19.

6. *Level-1 Consecutive Digit Sum Divisibility:* Form a new sequence C by taking the sum of consecutive digits of the large concatenated number from S'. For example, if the concatenated number is $d_1 d_2 d_3 \dots d_k$, then $C = \{ (0+d_1), (d_1+d_2), (d_2+d_3), \dots, (d{k-1}+d_k) \}$. (e.g., for the sample, this would be $31186106913101211305865688565178203434789$). The large number formed by concatenating the elements of sequence C must also be exactly divisible by 19.

7. *Level-2 Consecutive Digit Sum Divisibility:* Form a new sequence C' by taking the sum of consecutive digits of the large concatenated number from C. For example, if the concatenated number is $d_1 d_2 d_3 \dots d_k$, then $C' = \{ (0+d_1), (d_1+d_2), (d_2+d_3), \dots, (d{k-1}+d_k) \}$. (e.g., for the sample, this would be $342914716151044113324351314111114161311116815102377711517$). The large number formed by concatenating the elements of sequence C' must also be exactly divisible by 19.

8. *Level-3 Consecutive Digit Sum Divisibility:* Form a new sequence C'' by taking the sum of consecutive digits of the large concatenated number from C'. For example, if the concatenated number is $d_1 d_2 d_3 \dots d_k$, then $C'' = \{ (0+d_1), (d_1+d_2), (d_2+d_3), \dots, (d{k-1}+d_k) \}$. (e.g., for the sample, this would be $37611105118776614852465678644552222557744222714966125101414822668$). The large number formed by concatenating the elements of sequence C'' must also be exactly divisible by 7.

9. *Level-4 Consecutive Digit Sum Divisibility:* Form a new sequence C''' by taking the sum of consecutive digits of the large concatenated number from C''. For example, if the concatenated number is $d_1 d_2 d_3 \dots d_k$, then $C''' = \{ (0+d_1), (d_1+d_2), (d_2+d_3), \dots, (d{k-1}+d_k) \}$. (e.g., for the sample, this would be $310137221562915141312751213761011113151410891074447101214118644985131512737611555121048121 4$). The large number formed by concatenating the elements of sequence C''' must also be exactly divisible by 19.

10. *Divisibility of a consecutive sequence of Digital Roots:* Create a new array D' by taking the Digital Roots of each number in the array S'. $D' = \left[DR(a'_1),\ DR(b'_1),\ DR(a'_2),\ DR(b'_2),\ \ldots,\ DR(a'_7),\ DR(b'_7) \right]$ (e.g., for the sample, this would be $2 1 6 3 3 8 9 8 6 7 2 4 9 9$). When the numbers in D' are concatenated, the resulting larger number must be divisible by 19.

11. *Divisibility of a consecutive reverse sequence of Digital Roots:* The large number formed when the elements of the D'' array obtained by reverse ordering the D' array. $D'' = \left[DR(b'_7),\ DR(a'_7),\ \ldots,\ DR(b'_1),\ DR(a'1) \right]$ (e.g., for the sample, this would be $9 9 4 2 7 6 8 9 8 3 3 6 1 2$). When the numbers in D'' are concatenated, the resulting larger number must be divisible by 7.

12. *Divisibility of Sum of Numbers of Digital Roots:* The sum of the numbers in the sequence D' must be exactly divisible by 7. Let $DR_sum = \sum{i=1}^{N} (DR(a'_i) + DR(b'_i))$. Then $ DR_sum \equiv 0 \pmod{7}$.

13. *Divisibility of Consecutive Digit Sum of Digital Roots:* Form a new sequence D''' by taking the sum of consecutive digits of the large concatenated number from D'. For example, if the concatenated number is $d_1 d_2 d_3 \dots d_k$, then $D''' = \{ (0+d_1), (d_1+d_2), (d_2+d_3), \dots, (d{k-1}+d_k) \}$. (e.g., for the sample, this would be $2 3 7 9 6 11 17 17 14 13 9 6 13 18$). The large number formed by concatenating the elements of sequence $ D'''$ must also be exactly divisible by 19 and 7.

14. *Divisibility of a consecutive sequence of Sum of Prime Factors:* Create a new array PR by taking the Sum of Prime Factors of each number in the array S'. $PR = \left[PR_sum(a'_1),\ PR_sum (b'_1),\ PR_sum (a'_2),\ PR_sum (b'_2),\ \ldots,\ PR_sum (a'_7),\ PR_sum (b'_7) \right]$ (e.g., for the sample, this would be $28 12 30 11 17 53 16 15 15 8 16 31 16 10 $). When the numbers in PR are concatenated, the resulting larger number must be divisible by 19.

15. *Divisibility of Concatenated Counts of Prime Factors:* Create a new array PC by applying the "Count of Prime Factors" function PR_count (n) to each number in the array S'. PR_count (n) is defined as the count of all prime factors of a number n, including repetitions (count with multiplicity). The resulting array is $PC = \left[PR_count(a'_1),\ PR_count (b'_1),\ PR_count (a'_2),\ PR_count (b'_2),\ \ldots,\ PR_count (a'_7),\ PR_count (b'_7) \right]$ (e.g., for the sample, this would be $4 6 4 5 5 1 6 3 4 4 5 1 4 4 $). When the numbers in PC are concatenated, the resulting larger number must be divisible by 19.

16. *Divisibility of Concatenated of Numbers Grouped by Numbers with Number of Digits:* When the numbers in S' are concatenated in their number $E = \{ a'_1, a'_2, a'_3, a'_4, a'_5, a'_6, a'_7, b'_1, b'_2, b'_3, b'_4, b'_5, b'_6, b'_7\}$. Then the large number formed a new sequence E must also be exactly divisible by 7.

17. *Divisibility of Concatenated of Number of Reverse order of number pairs :* When the numbers in S' are concatenated in their number $F = \{ a'_7, b'_7, a'_6, b'_6, a'_5, b'_5, a'_4, b'_4, a'_3, b'_3, a'_2, b'_2, a'_1, b'_1\}$. Then the large number formed a new sequence F must also be exactly divisible by 7.

18. *Divisibility of Concatenated of Sums of Pairs of Numbers:* The new sequence G by taking Sums of Pairs of Numbers of S'. $G = \{ (a'_1+b'_1), (a'_2+b'_2), (a'_3+b'_3), (a'_4+b'_4), (a'_5+b'_5), (a'_6+b'_6), (a'_7+b'_7)\}$. (e.g., for the sample, this would be 444324353368166231261). The Digits of this sequence are (c'_i). The large number formed by concatenating the elements of sequence G must also be exactly divisible by 7.

19. *Divisibility of the Concatenated Sequence of Prime Factor Counts:* Create a new array PT by applying the "Count of Prime Factors" function PR_count (n) to each number in the array G. PR_count (n) is defined as the count of all prime factors of a number n, including repetitions (count with multiplicity). The resulting array is $PT = \left[PR_count(a'_1),\ PR_count (b'_1),\ PR_count (a'_2),\ PR_count (b'_2),\ \ldots,\ PR_count (a'_7),\ PR_count (b'_7) \right]$ (e.g., for the sample, this would be $4 6 1 5 2 3 3$). When the numbers in PT are concatenated, the resulting larger number must be divisible by 19 and 7.

20. *Divisibility of Sum of Digits of Sums of Pairs of Numbers:* The sum of their digits all numbers in G must also be exactly divisible by 7. Let $K(n)$ denote the sum of the digits of an integer n. Let $Y' = \sum{i=1}^{G} (K(c'_i))$. Then $Y' \equiv 0 \pmod{7}$.

21. *Divisibility of Concatenation of Number Pairs and Sums of Pairs of Numbers :* The new sequence K by taking Sums of Pairs of Numbers of S'. $K = \{ a'_1, a'_2, a'_3, a'_4, a'_5, a'_6, a'_7, b'_1, b'_2, b'_3, b'_4, b'_5, b'_6, b'_7, (a'_1+b'_1), (a'_2+b'_2), (a'_3+b'_3), (a'_4+b'_4), (a'_5+b'_5), (a'_6+b'_6), (a'_7+b'_7) \}$. (e.g., for the sample, this would be $380276300324150200225644853441631364443243533681662312 61$). The Digits of this sequence are (d'_i). The large number formed by concatenating the elements of sequence K must also be exactly divisible by 7.

22. *Divisibility of Concatenation of Number Pairs and Sums of Pairs of Numbers :* The new sequence P by taking Sums of Pairs of Numbers of S'. $P = \{ a'_1, b'_1, (a'_1+b'_1), a'_2, b'_2, (a'_2+b'_2), a'_3, b'_3, (a'_3+b'_3), a'_4, b'_4, (a'_4+b'_4), a'_5, b'_5, (a'_5+b'_5), a'_6, b'_6, (a'_6+b'_6), a'_7, b'_7, (a'_7+b'_7)\}$. (e.g., for the sample, this would be $380644442764832430053353324443681501616620031231225362 61$). The Digits of this sequence are (d'_i). The large number formed by concatenating the elements of sequence P must also be exactly divisible by 7.

23. *Divisibility of Sum of Digits of Number pairs and Sums of Pairs of Numbers:* The sum of their digits all numbers in P must also be exactly divisible by 19. Let $L(n)$ denote the sum of the digits of an integer n. Let $Z' = \sum{i=1}^{P} (L(d'_i))$. Then $Z' \equiv 0 \pmod{19}$.

24. *Divisibility of the sum of the remainders of the sum of pairs of numbers divided by 7:* The new sequence T by taking Sums of Pairs of Numbers of S'. $T = \{ (a'_1+b'_1)mod{7}, (a'_2+b'_2) mod{7}, (a'_3+b'_3) mod{7}, (a'_4+b'_4) mod{7}, (a'_5+b'_5) mod{7}, (a'_6+b'_6) mod{7}, (a'_7+b'_7) mod{7} \}$. The Numbers of this sequence are (e'_i). The sum of numbers in T must also be exactly divisible by 19. Q'=∑e_i , Let $Q' = \sum{i=1}^{T} (T(e'_i))$. Then $Q' \equiv 0 \pmod{19}$.

25. *Divisibility of the Consecutive Sequence of the Abjad Values of Letters and Total Numbers:* When S' is partitioned into two sub-sequences, S'_3 (the 3 digit numbers and their Abjad Values is $M=40$) and S'_4 (the 2 digit numbers and their Abjad Values is $H=8$), Concatenated of the Consecutive Sequence of the Abjad Values of Letters and Total Numbers must also be exactly divisible by 19 and by 7.

    * For $ S'_3 = \sum{i=1}^{N} (S' (a'_i))$
    * For $ S'_4 = \sum{i=1}^{N} (S' (b'_i))$
    * $\text{concat}(M , S'_3 , H , S'_4) \equiv 0 \pmod{133}$.

    Note: 133 = 19 × 7, therefore this test checks joint divisibility.