

- ① Is Euler's phi-function is one-one function?
- ② Is Euler's phi-function is onto function?
- ③ How many integers are relatively prime to 0.
- ④ How many integers are relatively prime to 1.
- ⑤ Find the value of x

where $x = 1! + 2! + 3! + 4! + \dots + (11111)!$

if $12 \mid x$

- ⑥ If $a \equiv b \pmod{n}$, then show $\gcd(a, b) = \gcd(b, n)$

- ⑦ If $a \equiv 1 \pmod{24}$, then what is $\gcd(a, 1)$

- ⑧ Find atleast two solutions of $2x + 3y = 1$

- ⑨ If $\gcd(a, b) = 1$ then $\gcd(a^2, b) = 1$

- ⑩ $(1 \times 2 \times 3 \times 4 \times \dots \times 15)^2 \pmod{17} = ?$

- ⑪ If p is prime number then

$$a^p \equiv a \pmod{p} \quad ; \quad a \in \mathbb{Z}$$

- ⑫ For any integers a and b , we have $\gcd(a, b) = \gcd(a, b-a)$

- ⑬ There is a quantity whose number is unknown. By repeatedly divided that number by 3, the remainder is 2. By divided that number by 5, remainder is 3

and divided by 7, remainder is 2.
What is quantity?

(14) $2x \equiv 1 \pmod{9}$, find solution?

(15) Compute Legendre Symbol
 $69 \pmod{389}$

(16) A farmer purchases seeds of quantity x ,
when farmer twice the quantity of seed
gives remainder 1, when divided by 3, also
gives remainder 2, when divided by 4
but the quantity of seeds gives remainder 3,
when divided by 5.

(17) Solve $123^{123} \pmod{11}$