Prime Time is a chapter, that focuses on the basic concepts of prime and composite numbers, factors, multiples, and divisibility rules. It lays the foundation for number theory and is useful for competitive exams

IMPORTANT CONCEPTS

• **Factor:** A number that divides another number exactly.
  Example: Factors of 12 → 1, 2, 3, 4, 6, 12

• **Multiple:** A number that is the product of a given number and an integer.
  Example: Multiples of 3 → 3, 6, 9, 12, ...

• **Prime Number:** A number greater than 1 that has only two factors: 1 and itself.
  Example: 2, 3, 5, 7, 11

• **Composite Number:** A number with more than two factors.
  Example: 4, 6, 8, 9, 10

• **Co-prime Numbers:** Two numbers having only 1 as their common factor.
  Example: 8 and 15

• **Perfect number:** Number for which the sum of all is factors is equal to twice the number.

  Example: 28- 1, 2, 4, 7, 8, 14, 28

• **Prime numbers:** Numbers that have only two factors, namely 1 and number itself.

  Ex: 2, 3, 5, 7, 11, 13 ....

• **Prime numbers from 1 to 100**
    2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

• **Twin primes:** Pairs of primes having a difference of 2.

  Ex: (3, 5), (17, 19)

• **Divisibility Rules**
    • **Divisible by 2** → Last digit is even (0, 2, 4, 6, 8)
    • **Divisible by 3** → Sum of digits divisible by 3
    • **Divisible by 4** → Last two digits divisible by 4
    • **Divisible by 5** → Last digit is 0 or 5

- **Divisible by 7** → Double the last digit and subtract it from the remaining part of the number
- **Divisible by 6** → Divisible by both 2 and 3
- **Divisible by 9** → Sum of digits divisible by 9
- **Divisible by 10** → Last digit is 0
- **Divisible by 11** → Difference of sum of all digits at odd places and digits at even places

- **Properties of Factors and Multiples:-**
  - Every number is a factor of itself.
  - 1 is a factor of every number.
  - Factors are finite.
  - Multiples are infinite.
  - Every number is a multiple of itself.
  - Every multiple of a number is greater than or equal to the number.

- **Prime Factorization: It means expressing a number as the product of its prime** factors.

  Ex: 36 = 2 × 2 × 3 × 3

- **Highest Common Factor (HCF):** The highest number that divides exactly two or more numbers.
  Ex: HCF of 12 and 18 = 6

- **Prime Factorization: Lowest Common Multiple (LCM)**: The smallest number that is a multiple of two or more numbers.
  Ex: LCM of 4 and 5 = 20

C-9, Greater Kailash Enclave 2, New Delhi; Phone 9810815644, 9910393669
Email: info.educonclave@gmail.com; sangeettuli@gmail.com

2