CHAPTER 16

Playing with Numbers

Divisibility by ‘6’:

A number is divisible by 6, if it is divisible by 2 as well as 3. Also, if a number is not divisible by either 2 or by 3 or by both, then it is not divisible by 6.

Example:

Consider the number n = 75480.

Clearly, ‘n’ is an even natural number as its unit’s digit is an even number.

So, ‘n’ is divisible by ‘2’.

The sum of the digits of ‘n’ is 7 + 5 + 4 + 8 + 0 = 24, which is divisible by ‘3’.

So, ‘n’ is divisible by 3. Thus, ‘n’ is divisible by both 2 and 3.

Hence, ‘n’ is divisible by ‘6’.

Divisibility by 7:

Remove the last digit, double it, subtract it from the truncated original number and continue doing this until only one digit remains, if this is ‘0’ or ‘7’, then the original number is divisible by 7.

Example:

(i) 602: Double of 2 is 4, 60 – 4 = 56 and 56 is divisible by 7. So, 602 is divisible by 7.

(ii) 1604: Double of ‘4’ is 8, 160 – 8 = 152 again 15 – 4 = 11.

Where 11 is not divisible by 7. So, 1604 is not divisible by 7.

Divisibility by 8:

A number is divisible by 8, if the number formed by its last 3 digits is divisible by 8.

Example:

(i) 109192: Here, 192 is divisible 8. So, the number is divisible by ‘8’.

(ii) 612203: Here, 203 is not divisible by 8. So, the number is not divisible by ‘8’.

Divisibility by 10:

A number is divisible by 10, if its unit digit is zero (0).

Explanation:

In generalized form of a 2 digit number 10a + b is divisible by 10 if b is equal to 0.

Example:

20, 40, 50, 300 etc.

Divisibility by 11:

A number is divisible by 11, if the difference between the sum of the digits at odd places and sum of the digits at even places is either zero or a number divisible by 11.

Example:

In the number 79387, the sum of the digits at odd places is 7 + 3 + 7 = 17 and the sum of the digits at even places is 9 + 8 = 17. The difference is 17 – 17 = 0, so the number is divisible by ‘11’.