



## CHAPTER: 13

### EXPONENT AND POWERS

#### **NOTES:**

Larger number can be written in a shorter form using exponents.

$$10,000 = 10 \times 10 \times 10 \times 10 = 10^4$$

The short notation  $10^4$  stands for the product  $10 \times 10 \times 10 \times 10$ . Here “4” the exponent. The number  $10^4$  is read as 10 raise to the power of 4 or simply as fourth power of 10.  $10^4$  is called the exponential form of 10,000.

#### Expressing large numbers in the standard form-

Very large numbers are not convenient to write and read. To make it convenient we use powers.

$$\text{e.g: } 59000 = 5.9 \times 10000 \\ = 5.9 \times 10^4$$

$$590000 = 5.9 \times 100000 \\ = 5.9 \times 10^5$$

$$5900000 = 5.9 \times 1000000 \\ = 5.9 \times 10^6$$

and so on.....

We have expressed all these numbers in the standard form. Any number can be expressed as a decimal number between 1.0 and 10.0 including 1.0 multiplied by a power of 10. Such a form of number is called its standard form.

$$5,985 = 5.985 \times 1000 \\ = 5.985 \times 10^3$$

is the standard form of 5,985