1.**What** **is** **Finite precision ?**

Finite precision is computer use a finite number of bits(0’ s and 1;s) to represent numbers.

**2.List The Source of Errors**

There are some types of errors

a) Truncation /Discretization of error

b) Approximation error

c) Relative error and

d) Absolute error

**3.Define Error Measurement**

Absolute error and relative errors can be taken under the measurement error .

1. **Absolute error** is magnitude of the difference between the true value x and the approximate value Xa

The error between two values is defined as

Eabs = ||X-Xa||

Where X denotes the exact values and Xa denotes the approximation

2. **Relative error** is defined as the ratio of absolute to the size of X

Erel= ||X-Xa||/||X||

4. **Define Mathematical** **Modeling**

Modeling is the art of describing in symbolic language of a real life System so that approximately correct prediction can be made regarding the behavior or evolution of the system under varied circumstances of interest. Mathematics is the language of engineering.

**5.Define Accuracy & Precision**

**Accuracy** :- refers to how closely a value agree with true value.

**Precision** :- refers to how closely a values agree with each other.

6. To convert first we need to separate the intiger and the fraction number in two parts

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 35 | 2 |  |  |  |  |  |
| -34 | 17 | 2 |  |  |  |  |
| 1 | -16 | 8 | 2 |  |  |  |
|  | 1 | -8 | 4 | 2 |  |  |
|  |  | 0 | -4 | 2 | 2 |  |
|  |  |  | 0 | -2 | 1 |  |
|  |  |  |  | 0 |  |  |
| Translation of numbers from one system to another | | | | | |  |

Result of integer part :3510 = 1000112   
  
The fractional part of number is found by multiplying on the basis new

|  |
| --- |
| Translation of numbers from one system to another |
| **0** | .625 |
| **.** | 2 |
| **1** | 25 |
|  | 2 |
| **0** | 5 |
|  | 2 |
| **1** | 0 |
|  |  |

Result of fraction part :0.62510 = 0.1012   
  
Then add the intiger and fractional part here :-  
  
1000112 + 0.1012 = 100011.1012   
  
The final result will be :-  
35.62510 = 100011.1012