**Answer:**

**1.** Precision means the smallest change that can be represented in Floating point representation. Here fractional part will determine the precision of Floating point number. Fractional part is called Mantissa in floating point representation. For example 5 number can be represented in 4 bits as 0.005\*10^3

0.500\*10^1

5.000\*10^0.

Among these three types of decimal floating point representation, the last is more précised since there are three zero’s in the right of 5 says that if any extra error in actual result like 5.0009\*10^0 will lead to only 0.018%error.

**2.** Normal representation won’t be having so many leadings zero’s. But subnormal representation has minimum number in its exponent value which will lead to more zero’s in its mantissa. For example:0.05 decimal value can be represented in binary by 2 ways:

(i) Normal Representation: 1.01\*2^-6

(ii) Subnormal Representation: 0.00101\*2^-3

**3.** IEEE754 standard defines five rounding rules:

(i). Rounding to nearest, ties to even: In this method, real number is rounded off to the nearest even number.

For example: 7.3 is rounded off to 8.0

(ii). Rounding to nearest, ties away from zero: In this method, real number is rounded off to the nearest integer number. If a real number falls in the middle of two integers, it is rounded to the nearest value above (for positive numbers) or below (for negative numbers).

For example: 7.3 is rounded off to 7.0

7.5 is rounded off to 8.0

-7.5 is rounded off to -8.0

(iii). Round towards zero: In this method real number is truncated to the nearest integer while going towards to zero.

For example: 7.5 is rounded off to 7.0

7.9 is rounded off to 7.0

-7.6 is rounded off to -7.0

(iv).Round toward +∞ : In this method real number is truncated to the nearest integer while going towards to +infinity.

For example: 7.5 is rounded off to 8.0

7.9 is rounded off to 8.0

-7.6 is rounded off to -7.0

(v). Round toward−∞ : In this method real number is truncated to the nearest integer while going towards to zero.

For example: 7.5 is rounded off to 7.0

7.9 is rounded off to 7.0

-7.6 is rounded off to -8.0