COMPUTER NUMBER SYSTEM

Other Base System to Decimal Number Base the procedures are spelt out thus:

A) Determine the base value of source Number System (that you want to convert), and also determine the position of digits from LSB (first digit's position – 0, second digit's position –1 and so on).

B) Multiply each digit with its corresponding multiplication of position value and Base of

Source Number System's Base.

C) Add/Sum up the resulted value in step-B.

Example 5: Convert 11011012 to Base 10

Solution:

Binary to Decimal Conversion

1 * 2 + 1 * 2 + 0 * 2 + 1 * 2 + 1 * 2 + 0 * 2 + 1 * 2 (Comment: What we did here is in line

with step A e.g. we multiply the given/source base's number (e.g. Base 2 - 1101101) with the

base index e.g. 2.

Now, to complete the conversion computation, superscript the index position starting from 0

backward increasing downward. For instance, the equation becomes:

1 * 26 + 1 * 25 + 0 * 24 + 1 * 23 + 1 * 22 + 0 * 21 + 1 * 20

= 1 * 64 + 1 * 32 + 0 * 16 + 1 * 8 + 1 * 4 + 0 * 2 + 1 * 1

= 64 + 32 + 0 + 8 + 4 + 0 + 1

= 10910 (QED)

Example 6: Convert 538 to Base 10

Solution:

Octal to Decimal Conversion

5 * 8 + 3 * 8 (Comment: What we did here is in line with step A e.g. we multiply the given/source base's number (e.g. Base 8 - 53) with the base index e.g. 8.

Now, to complete the conversion computation, superscript the index position starting from 0

backward increasing downward. For instance, the equation becomes:

5 * 81 + 3 * 80 = 5 * 8 + 3 * 1= 40 + 3 = 4310 (QED)