**Binary representations**

I **Codes (direct, inverse, complementary) for signed integers and subunitary numbers.**

**Representation on 16 bits.**

1. +5674
2. +489
3. -945
4. -1897
5. +0,15
6. +11/16
7. -0,45
8. -9/16

**Results:** S S S

1. [*x*]D=0|001011000101010, [*x*]I=0|001011000101010, [*x*]C=0|001011000101010
2. [*x*]D=0|000000111101001, [*x*]I=0|000000111101001, [*x*]C=0|000000111101001
3. [*x*]D=1|000001110110001, [*x*]I=1|111110001001110, [*x*]C=1|111110001001111
4. [*x*]D=1|000011101101001, [*x*]I=1|111100010010110, [*x*]C=1|111100010010111

S, S, S,

1. [*x*]D=0|001001100110011, [*x*]I=0|001001100110011, [*x*]C=0|001001100110011
2. [*x*]D=0|101100000000000, [*x*]I=0|101100000000000, [*x*]C=0|101100000000000
3. [*x*]D=1|011100110011001, [*x*]I=1|100011001100110, [*x*]C=1|100011001100111
4. [*x*]D=1|100100000000000, [*x*]I=1|011011111111111, [*x*]C=1|011100000000000

II **Addition in complementary code (on 8 bits) for signed integers and subunitary numbers:**

1. +19 and +26
2. +94 and -85
3. -63 and 46
4. -84 and -79
5. +0,81 and +0,73
6. +0,51 and -0,76
7. -0,88 and +0,93
8. -0,12 and -0,34

**Results:** S

1. [19 +26] C = 0|0101101 =[45] C
2. [94 -85] C = ~~1~~0|0001001 =[9] C
3. [-63+46] C = 1|1101111 =[-17] C
4. [-84 -79] C = ~~1~~0|1011101, overflow

S,

1. [+0,81+0,73] C = 1|1000100, overflow
2. [0,51-0,76] C = 1|1100000 =[-0,25] C
3. [-0,88 +0,93] C = ~~1~~0|0000111 =[0,07] C
4. [-0,12 -0,34] C = ~~1~~1|1000110 =[-0,46] C

**III Fixed-point representation on 16 bits, I=9 and F=6:**

S I , F

1. +1045,67 0|000010101|101010 !!overflow

The most significant 2 binary digits from the integer part are lost!

S I , F

1. +43,12 0|000101011|000111

S I , F

1. -12,03 1|000001100|000001

S I , F

1. -8097,48 1|110100001|011110 overflow

The most significant 4 binary digits from the integer part are lost!

**IV Floating-point representation, single precision, m<1.**

S c , m

1. +5941,36 0|10001100|10111001101010101110000
2. +0,018 0|01111010|10010011011101001011110
3. -6948,27 1|10001100|11011001001000100010100
4. -0,071 1|01111100|10010001011010000111001

**V** **Floating-point representation, single precision, m>1.**

S c , m

1. +6948,27 0|10001011|10110010010001000101000
2. +0,041 0|01111010|01001111110111110011101
3. -2914,73 1|10001010|01101100010101110101110
4. -0,009 1|01111000|00100110111010010111100