(-0.125)

$(0)_{10} = (0000)_2$

$(0.125)_{10} = 0.125 * 2 = 0.250$
$.250 * 2 = 0.5$
$.5 * 2 = 1$

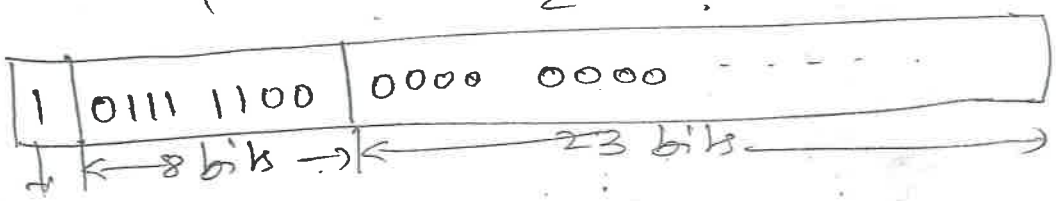
$(0.125)_{10} = (0.001)_2$

Step 1: Normalization:

$0.001 = 1.0 * 2^{-3}$

Single Precision representation:

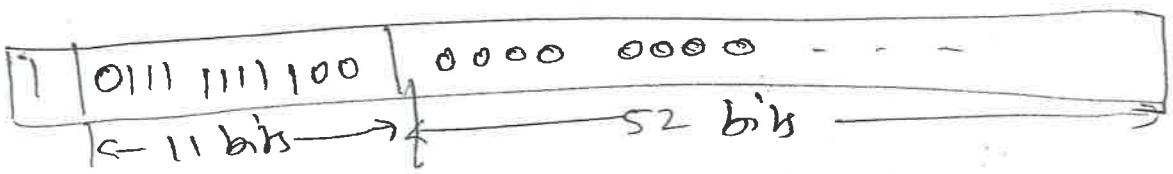
New Expo $= -3 + 127 = 124$
$= (0111\ 1100)_2$



Sign = -ve

Double Precision

New expo $= -3 + 1023 = 1020$
$= (0111\ 1111\ 100)_2$



Q 4(a)

OR

(1) MOV AX [1000] – Direct addressing.

Data value found at memory addres 1000 is loaded in register AX

(2) MOV AX, 1000 – Immediate addressing

numeric value 1000 is moved in rg. AX.

(3) MOV AX, [SI + 200] – Indexed (displacement) Add. mode.

This instruction adds the contents of SI with 200 to produce the address of the memory value to fetch.

– useful for fetching/accessing elements of arrays, records, & other data structures.

(4) MOV AX, BX – register addressing

. moves contents of register BX in AX

(5) MOV [BX], AX – Register indirect addressing.

move contents of register AX in mem location whose addres is stored in register BX

03

$M = (-7) \Rightarrow 7 = 0111 \quad \therefore -7 = 1000 + 1$

$m = -7 = 1001$

$-m = 0111$ | $m_2 -7 = 1001$ | $Q = 0011$

	A	Q	Q_{-1}	
	0000	0011	0	$A = A - m \quad 0000 + 0111 = 0111$
I_1	0111	0011	0	ARS A, Q, Q_{-1}
	0011	1001	1	
I_2	0001	1100	1	ARS A Q Q_{-1}
	1010	1100	1	$A = A + m \quad 0001 + 1001 = 1010$
I_3	1101	0110	0	ARS A Q Q_{-1}
I_4	1110	1011	0	ARS A Q Q_{-1}

Result = 1110 1011

$= \overset{+}{-}\,00101\,00 + 1$

$= -00101\,01$

$= -(2^4 + 2^2 + 2^0)$

$= -(16 + 4 + 1)$

$(-7 * 3) = (-21)_{10}$