Tutorial - 1 CSC - 220

Solution 1

I.

2 | 396	
2 | 198	— 0
2 | 99	— 0
2 | 49	— 1
2 | 24	— 1
2 | 12	— 0
2 | 6	— 0
2 | 3	— 0
2 | 1	— 1
0	— 1

$0.25 \times 2 = 0.50$ ↓

$0.50 \times 2 = 1.00$ ↓

Therefore $(396.25)_{10} = (110001100.01)_2$

II.

0 0 0 0	0
0 0 0 1	1
0 0 1 0	2
0 0 1 1	3
0 1 0 0	4
0 1 0 1	5
0 1 1 0	6
0 1 1 1	7
1 0 0 0	8
1 0 0 1	9

$(396.25)_{10}$

$= (0011\ 1001\ 0110.0010\ 0101)_{BCD}$

III.

8 | 396
8 | 49 — 4 ↑
8 | 6 — 1 |
0 — 6 |

$0.25 \times 8 = 2.00$

So, $(396.25)_{10} = (614.2)_8$

IV.

16 | 396
16 | 24 — C ↑
16 | 1 — 8 |
0 — 1 |

$0.25 \times 16 = 4.00$ ↓

So $(396.25)_{10} = (18C.4)_{16}$

Solution 2

10	11	12	13	14	15
A 1010	B 1011	C 1100	D 1101	E 1110	F 1111

I. 1 1010 1000 1101

= 1 A 8 D

$= (1A8D)_{16}$

II. 9 7 A D . 2 E

= 1001 0111 1010 1101 . 0010 1110

$= (1001\,0111\,1010\,1101.0010\,1110)_2$

II.

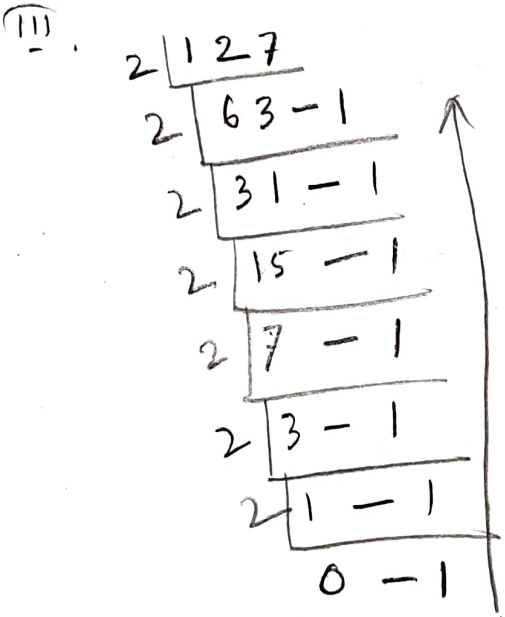
A	B	C	D	E	F
10	11	12	13	14	15

9	7	A	D.	2	E
16^3	16^2	16^1	16^0	16^{-1}	16^{-2}

$= (9 \times 16^3) + (7 \times 16^2) + (10 \times 16) + (13) + (2/16) + (14/16^2)$

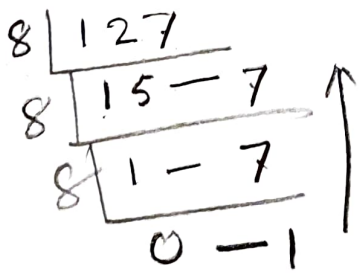
$= (38829.1796875)_{10}$

III.



$0.375 \times 2 = 0.750$
$0.750 \times 2 = 1.500$
$0.500 \times 2 = 1.000$ ↓

Therefore $(127.375)_{10} = (1111111.011)_2$



$0.375 \times 8 = 3.000$ ↓

So $(127.375)_{10} = (177.3)_8$