Number System ⇒ ① Binary
② Decimal
③ Octal
④ Hexadecimal.

① Binary :- 1-0

② Decimal :- 0-9

③ Octal :- 0-8

④ Hexadecimal :- 0-0

1-1	6-6	11-B
2-2	7-7	12-C
3-3	8-8	13-D
4-4	9-9	14-E
5-5	10-A	15-F

① Binary to Decimal :-

$(10101)_2 \Rightarrow (?)_{10}$

1 0 1 0 1
2^4 2^3 2^2 2^1 2^0 ←
16 8 4 2 1

$= 16 + 4 + 1$
$= (21)_{10}$

② Octal to Decimal :-

$(2057)_8 = (?)_{10}$

2 0 5 7
8^3 8^2 8^1 8^0

$= 2 \times 8^3 + 0 \times 8^2 + 5 \times 8^1 + 7 \times 8^0$
$= 1024 + 0 + 40 + 7 \Rightarrow (1071)_{10}$

③ Hexadecimal to Decimal :-

$(28E)_{16} \Rightarrow (?)_{10}$

2	3	E
2	3	14
16^2	16^1	16^0

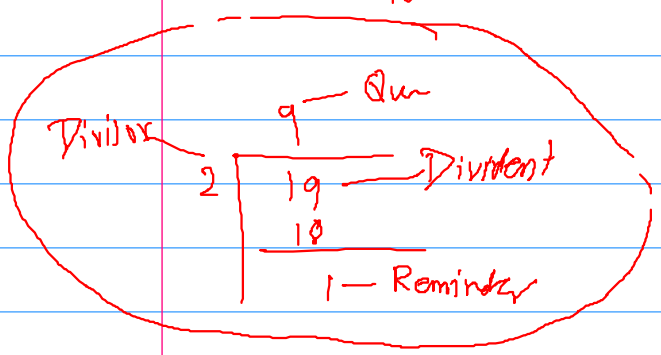
$= 2\times16^2 + 3\times16^1 + 14\times16^0$

$= 574$

④ Decimal to Binary

$(19)_{10} = (?)_2$

→ Successive Devision



2	19	—	LSB — least significan Bit
2	9	1	
2	4	1	
2	2	1	Read
	1	0	

MSB most significant Bit

10011

Binary.

1 0 1 0 1

16 8 4 2 1

$= 21$ ✓

1 0 0 1 1

2^4 2^3 2^2 2^1 2^0

16 8 4 2 1

$= 16 + 2 + 1$

$= 19$

⑤ Decimal to Octal

$(19)_{10} = (?)_8$

Successive Division

8	19	
	2	3 — LSB

MSB

$19 \Rightarrow 23$

⑥ Decimal to Hexadecimal :-

$(19)_{10} \Rightarrow (?)_{16}$

Successive Division

16 | 19 — LSB

3 — MSB

$19 \Rightarrow \underline{13}$

⑦ Hexadecimal to Binary.

A9

$\Rightarrow \underline{1010\ 1001}$

A → 10

9 → 9

2^3	2^2	2^1	2^0
(8)	4	(2)	1
1	0	1	0

2^3	2^2	2^1	2^0
(8)	4	2	(1)
1	0	0	1

1	0	1	0	1	0	0	1
(128)	64	(32)	16	(8)	4	2	(1)

$128 + 32 + 8 + 1 \Rightarrow \underline{(169)_{10}}$