



Subject: DLCA

SEM: III

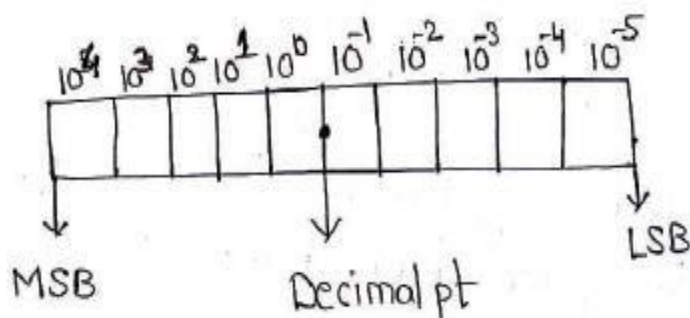
I Number Systems & Codes.

Number Systems.

1) Decimal Number System :-

→ Base or Radix is 10.

→ Decimal No's are 0 to 9



LSB = Right most digit having lowest weight is called Least significant bit

MSB = Left most digit having highest weight is called most significant bit.

2) Binary Number System :-

→ Binary no's are 0 and 1

→ Binary no. has base of 2

→ 0 and 1 are also called as bits.

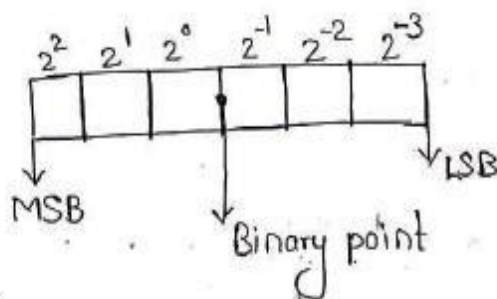


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→ Group of four binary bits is known as Nibble

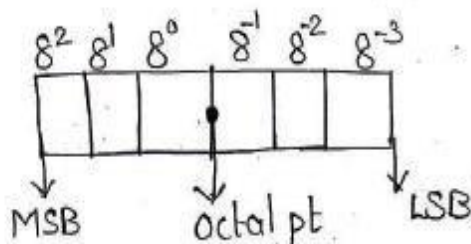
→ Group of eight binary bits is known as Bytes.



3) Octal Number system :-

→ Octal No. system have base 8

→ octal No's are 0 to 7



1) Hexadecimal Number system :-

→ Base is 16 & Numbers are 0 to 15

→ First 10 digit are represented as 0 to 9 & remaining 5 digit are represented as characters A to F.



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Relation between Decimal, binary, octal, Hexadecimal.

Decimal (base 10)	Binary (Base 2)	Hexadecimal (base 16)	Octal (base 8)
0	0000	0	0
1	0001	1	1
2	0010	2	2
3	0011	3	3
4	0100	4	4
5	0101	5	5
6	0110	6	6
7	0111	7	7
8	1000	8	10
9	1001	9	11
10	1010	A	12
11	1011	B	13
12	1100	C	14
13	1101	D	15
14	1110	E	16
15	1111	F	17



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Number System.

SrNo	Number System	Base	Allowed digits	Examples
1	Decimal	10	0, 1, --- 9	(123) ₁₀ , (123) _D
2	Binary	2	0, 1	(011) ₂ , (011) _B
3	Octal	8	0, 1, --- 7	(543) ₈ , (543) _O
4	Hexadecimal	16	0, 1, --- 9, A, B, C, D, E, F	(0AB67) ₁₆ , (0AB67) _H