

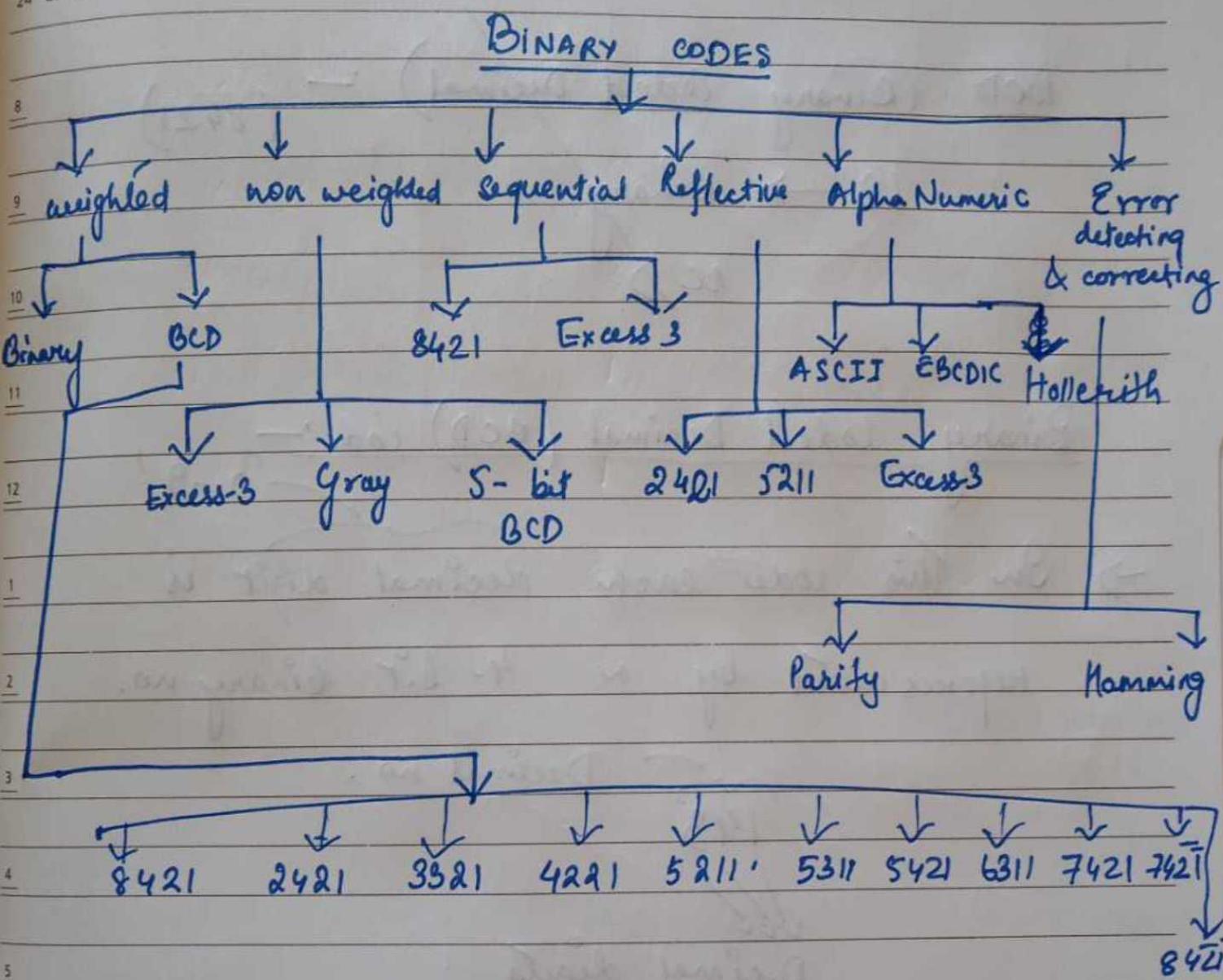
JUNE - 2019

M	T	W	T	F	S	S
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

WK 21 (141-224)

MAY • TUESDAY

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JUNE

JULY

AUGUST

Binary Loded Decimal (BCD) code - '0-9'

→ In this code each decimal digit is represented by a 4-bit binary no.

143
↓↓↓
Decimal digits

→ Positional weights are '8,4,2,1', so also called 8421 code.

8 Decimal

0

1

2

3

4

5

6

7

8

9

BCD

0 0 0 0

0 0 0 1

0 0 1 0

0 0 1 1

0 1 0 0

0 1 0 1

0 1 1 0

0 1 1 1

1 0 0 0

1 0 0 1

2 4 bits - $2^4 = 16$

3 Invalid Oct

10
11
12
13
14
15

4 They are decimal no. & not decimal digits

X X X X

X X X X

,

,

.

X X X X

Conversion of Decimal No to BCD .

(i) $(17)_{10} \Rightarrow 00010111$

1 7

0001 0111

(ii) $156 \Rightarrow ?$

BCD to Decimal :-

(i) 10100 BCD

0001 0100
1 4

Make group
of 4 bits
from right.

(14)₁₀

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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MAY • SATURDAY

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(ii) 10010 01

$$\begin{array}{r} 0100 \ 1001 \\ \hline \end{array}$$

$$(4\ 9)_{10}$$

↳ Comparison bet'n Binary & BCD :-

$$(10)_{10} \rightarrow \begin{array}{l} \text{Binary} \\ 1010 \end{array} \quad \begin{array}{l} \text{BCD} \\ 0001\ 0000 \end{array}$$

$$(12)_{10} \rightarrow \begin{array}{l} 1100 \\ 0001\ 0010 \end{array}$$

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MONDAY • MAY

1	2	3	4	5	6
7	8	9	10	11	12
14	15	16	17	18	19
21	22	23	24	25	26

BCD Addition:

- 8) 1) Sum ≤ 9 , final carry = 0 | Ans ✓
- 9) 2) Sum ≤ 9 , final carry = 1 | Ans X (To correct it add 0110)
- 10) 3) sum > 9 , final carry = 0 | Ans X (")

Perform
Simple binary
addition .

12) ✓ $(2)_{10} + (6)_{10}$

$$\begin{array}{r}
 0010 \\
 0110 \\
 \hline
 1000
 \end{array}
 \begin{array}{l}
 \text{Sum} < 9 \\
 \text{Final carry} = 0.
 \end{array}$$

5) ✓ $(3)_{10} + (7)_{10}$

$$\begin{array}{r}
 0011 \\
 0111 \\
 \hline
 1010
 \end{array}
 \begin{array}{l}
 \text{Sum} > 9 \\
 \text{Final carry} = 0
 \end{array}$$

6) We have to add 0110 .

$$2^4 = 16$$

0 0.

:

:

:

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:

:

9 15

$$15 - 9 = 6$$

Sum = 1010

→ Binary

$$\begin{array}{r} 0110 \\ + 0001 \\ \hline 10001 \end{array}$$