BCD Adder

D-21

BCD adder: 4-bit BCD code is add in such a way that if sum is greater than "9" $(1001)_2$, then addition of "6" $(0110)_2$ is done and carry is generated to next decimal position.

⟹ Let us take an example of two given BCD numbers.

Adding 8 and 9 in BCD, we get

$$(8)_{10} = (1000)_2$$
$$(9)_{10} = (1001)_2$$

```
  8          1000
  9          1001
 ---      ---------
 17       0001 0001   ← Incorrect BCD code
           1    1
```

→ To get the correct BCD Result "6" has to be added in the least significant digit of sum;

```
  8  ──────→      1000
  9  ──────→      1001
 ------        ------------
 (17)10       0001  0001  ← Incorrect BCD code
              0000  0110  ← Addition of "6"
             ------------
              0001  0111
               1     7
```

⟺

```
 5 ── 0101
 4 ── 0100
 ---  ------
 9 ⟹  1001
```