

#### ***4.4 SUBTRACTORS***

Subtraction is the other basic function of arithmetic operations of information-processing tasks of digital computers. Similar to the addition function, subtraction of two binary digits consists of four possible elementary operations, which are  $0-0 = 0$ ,  $0-1 = 1$  with borrow of 1,  $1-0 = 1$ , and  $1-1 = 0$ . The first, third, and fourth operations produce a subtraction of one digit, but the second operation produces a difference bit as well as a *borrow* bit. The borrow bit is used for subtraction of the next higher significant bit. A combinational circuit that performs the subtraction of two bits as described above is called a *half-subtractor*. The digit from which another digit is subtracted is called the minuend and the digit which is to be subtracted is called the *subtrahend*. When the minuend and subtrahend numbers contain more significant