BINARY CODES:

Code is a symbolic representation of discrete information. Codes are of different types.

ASCII CODE:

American Standard Code for Information Interchange (ASCII), pronounced as ask-ee. ASCII is a code for representing English characters as numbers, with each letter assigned a number from 0 to 127.

For example, ASCII code for uppercase 'A' is 65.

ASCII code for lowercase 'a' is 97.

It is a type of code for data transmission. The ASCII translates all letters, characters and symbols into code that was widely used in most computer systems for many years. There are two types of ASCII codes. The standard code uses a 7-bit encoding system, while the extended uses an 8-bit system. Most computers use ASCII codes to represent text, which makes it possible to transfer data from one computer to another.

BCD (Binary Coded Decimal):

Binary coded decimal (BCD) is a system of writing numerals that assigns a four-digit binary code to each digit 0 through 9 in a decimal (base-10) number system. The four-bit BCD code for any particular single base-10 digit is its representation in binary notation, as follows:

0 = 0000
1 = 0001
2 = 0010
3 = 0011
4 = 0100
5 = 0101
6 = 0110
7 = 0111
8 = 1000
9 = 1001

The numbers which are larger than 9, having two or more digits in the decimal system are expressed digit by digit. For example, the BCD rendition of the base-10 number 1895 is

0001 1000 1001 0101

The binary equivalents of 1, 8, 9, and 5, always in a four-digit format, go from left to right.
The BCD representation of a number is not the same, in general, as its simple binary representation. In binary form, for example, the decimal quantity 1895 appears as
11101100111
Other bit patterns are sometimes used in BCD format to represent special characters relevant to a particular system, such as sign (positive or negative), error condition, or overflow condition.
The BCD system offers relative ease of conversion between machine-readable and human-readable numerals. As compared to the simple binary system, however, BCD increases the circuit complexity. The BCD system is not as widely used today as it was a few decades ago, although some systems still use BCD in financial applications.

EBCDIC CODE:

EBCDIC (Extended Binary Coded Decimal Interchange Code) is a binary code for alphabetic and numeric characters which is developed by IBM for its larger operating systems. It is a character encoding set used by IBM mainframes. In an EBCDIC file, each alphabetic or numeric character is represented with an 8-bit binary number (a string of eight 0's or 1's). 256 possible characters (letters of the alphabet, numerals, and special characters) are defined.
EBCDIC uses the full 8 bits available to it, so parity checking cannot be used on an 8 bit system. Also, EBCDIC has a wider range of control characters than ASCII.

There are four main blocks in the EBCDIC code page:

0000 0000 to 0011 1111 is reserved for control characters;
0100 0000 to 0111 1111 is for punctuation;
1000 0000 to 1011 1111 is for lowercase characters and
1100 0000 to 1111 1111 is for uppercase characters and numbers.

GRAY CODE:

Gray Code is one of the most important codes. It is a non-weighted code which belongs to a class of codes called minimum change codes. In this code while traversing from one step to another step, only one bit in the code group changes. In case of Gray code, two adjacent code numbers differs from each other by only one bit. The idea of it can be cleared from the table given below.

Decimal numbers	Binary code	Gray code
0	0000	0000
1	0001	0001
2	0010	0011
3	0011	0010
4	0100	0110
5	0101	0111
6	0110	0101
7	0111	0100
8	1000	1100
9	1001	1101
10	1010	1111
11	1011	1110
12	1100	1010
13	1101	1011
14	1110	1001
15	1111	1000

As this code it is not applicable in any types of arithmetical operations but it has some applications in analog to digital converters and in some input/output devices.