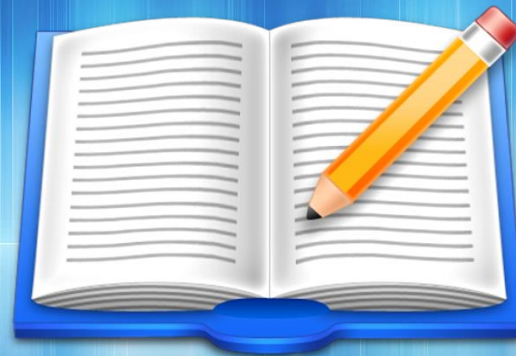


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# COMPUTER BASIC CONCEPTS

## CHAPTER 1 - ANSWERS



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# EXERCISE 1

- **Digital devices:** cd player, dvd player, digital watch, computer, digital camera, mobile phone etc.  
**Analog devices:** traditional camera, mercury thermometer, record player, analog watch
- **CD's** keep the sound quality intact, they have greater capacity than vinyl disks so they can store more tracks and have high portability so they can be easily transferred due to their small size. The **vinyl disks** of an expensive record player have a greater sound quality in the beginning but they wear out easily after some usage.

# EXERCISE 2

$$\begin{aligned} 1011011 &= 1*2^0 + 1*2^1 + 1*2^3 + 1*2^4 + 1*2^6 = \\ &= 1 + 2 + 8 + 16 + 64 = \mathbf{91} \end{aligned}$$

$$\begin{aligned} 0111110 &= 1*2^1 + 1*2^2 + 1*2^3 + 1*2^4 + 1*2^5 = \\ &= 2 + 4 + 8 + 16 + 32 = \mathbf{62} \end{aligned}$$

# EXERCISE 2

1650		2
<hr/>		
825		0
412		1
206		0
103		0
51		1
25		1
12		1
6		0
3		0
1		1
0		1

1650 = 11001110010

270		2
<hr/>		
135		0
67		1
33		1
16		1
8		0
4		0
2		0
1		0
0		1

270 = 100001110

# EXERCISE 2

$$\begin{array}{r} 00011101 \\ + 01101010 \\ \hline 10000111 \end{array}$$

$$\begin{array}{r} 01011 \\ + 00111 \\ \hline 10010 \end{array}$$

# EXERCISE 3

- Number of characters =  $10 \times 200 \times 2000 = 4.000.000$   
= 4.000.000 bytes  
 $\approx$  **4 MB**

- Based on ASCII code we have:

D = 01000100, O = 01001111, G = 01000111

So the word DOG is represented from  $3 \times 8 = 24$  bits = **3 bytes**

**DOG** = 01000100 01001111 01000111

# EXERCISE 4

1. The first computers were not very successful in using the **decimal system** (digits 0 - 9) in order to carry out mathematical operations or represent computer data. It was a very complicated and expensive solution to build electronic circuits that would manage 10 different electronic states.

Therefore, the 10 digits of the decimal system were replaced with 2 digits in **binary system** in order to represent better computer data.

# EXERCISE 4

2. 500 GB = 500 x 1024 MB  
= 500 x 1024 x 1024 KB  
= 500 x 1024 x 1024 x 1024 bytes  
= 536.870.912.000 bytes  
≈ 500 billions of bytes
3. We write the characters in ASCII form.
4. It is the encoding system of the computer for representing each character of the keyboard. In ASCII system each character is represented from 8 bits.