German University in Cairo
Computer Science and Engineering Department
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Introduction to Computer Science, Winter Term 2007-2008
Assignment 5

Submission: Thursday 17.1.2008 (17:00 pm)

Exercise 5-1 (1 Mark)

Convert the following number $(110100.1001)_2$ from binary to decimal

Exercise 5-2 (4 Marks)

Assume that our computer stores decimal numbers using 16 bits – 10 bits for a sign/magnitude mantissa and 6 bits for a sign/magnitude base-2 exponent.

Sign of mantissa	Mantissa	Sign of exponent	Exponent
1 bit	9 bits	1 bit	5 bits

Show the internal representation of the following decimal floating point number -17.575

Exercise 5-3 (3 Marks)

Perform the addition of the following binary numbers.

a) $1.0101 + 0.1011$

b) $1100 + 0.1101$

c) $110.1011 + 11.1111$

Exercise 5-4 (2 Marks)

Write the 8-bit sign magnitude and 1's complement representations for each of these decimal numbers:

a) +36

b) -76