

Name	Signature	Student Id Nr	Points

## 581305-6 Computer Organization I, miniexam 2, 5.12.2017 (10p)

Write your answer on this exam paper in the space given. Please notice, that the exam paper is 2-sided.

a) [3 p] Name three integer representations and give the 8-bit big-endian representation for value +13 in each of them.

b) [2 p] What is the IEEE floating point standard “hidden bit” (implicit bit)?

What do you gain with it?

When is it hidden? When is it visible?

c) [1 p] What is the IEEE floating point standard normalized 32-bit representation of -4.75?

- d) [2 p] 7-bit unsigned integer values are stored into 8-bit bytes. The leftmost bit (most significant bit) in each byte is parity bit, and even parity is used.

How is value 19 stored in a byte? What is the value of the parity bit? Explain.

Assume now, that one finds an error when checking the parity bit.

What does it mean? What do you do now?

- e) [2 p] The memory bus has 32 wires for address transmission ("address lines"). They are protected with Hamming code using extra wires.

How many extra wires are needed for the Hamming code? Explain.

Is the Hamming code computation in this case done at hardware or software level? Explain.

Assume now, that one finds an error when checking the Hamming code.

What does it mean? What do you do now?